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Ontario Legislative Assembly

SESSIONAL PAPERS

VOL. LI.—PART VI.

FIFTH SESSION

OF THE

FOURTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO

SESSION 1919

TORONTO:

Printed and Published by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1919



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No. 17 Report of the Minister of Education, for the year 1918. Presented to the Legislature, 8th April, 1919. *Printed.*

No. 18 Report of the Board of Governors of the University of Toronto, for the year ending 30th June, 1918. Presented to the Legislature, 26th February, 1919. *Printed.*

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No. 21 Report of the Provincial Board of Health, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 22 Report on the Hospitals for the Insane, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 23 Report on Hospitals for Idiots and Epileptics. *Not presented.*

No. 24 Report on Hospital for Feeble-minded, Orillia, for the year 1918, and Part II. on Feeble-minded in Ontario. Presented to the Legislature, 9th and 15th April, 1919. *Printed.*

No. 25 Report upon the Hospitals and Charities, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

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No. 28 Report upon the Operation of the Ontario Temperance Act, for the year 1918. Presented to the Legislature, 11th April, 1919. *Printed.*

No. 29 Report of the Department of Agriculture, for 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 30 Report of the Agricultural College and Agricultural Farm, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 31 Report of the Ontario Veterinary College, for the year 1918. Presented to the Legislature, 16th April, 1919. *Not printed.*

No. 32 Report of the Ontario Agricultural and Experimental Union, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 33 Report of the Stallion Enrolment Board, for the year 1918. Presented to the Legislature, 6th March, 1919. *Printed.*

No. 34 Report of the Ontario Vegetable Growers' Association, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

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No. 36 Report of the Entomological Society of Ontario, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 37 Report of the Ontario Bee-Keepers' Association, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

No. 38 Report of the Dairymen's Association of Ontario, for the year 1918. Presented to the Legislature, 9th April, 1919. *Printed.*

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| No. 39 | Report of the Live Stock Associations of Ontario, for the year 1918.
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| No. 40 | Report of the Farmers' Institutes of Ontario. <i>Dropped.</i> |
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| No. 55 | Report of the Workmen's Compensation Board, up to 31st December, 1918. Presented to the Legislature, 17th April, 1919. <i>Printed.</i> |
| No. 56 | Report of the Ontario Insurance Commission. Presented to the Legislature, 26th February, 1919. <i>Printed.</i> |
| No. 57 | Report of G. T. Clarkson upon the Accounts of the Hydro-Electric Power Commission of Ontario. Presented to the Legislature, 4th March, 1919. <i>Printed.</i> |
| No. 58 | Second Interim Report on Venereal Disease. Presented to the Legislature, 26th February, 1919. <i>Printed.</i> |
| No. 59 | Return to an Order of the House of the 13th March, 1918, for a Return of the names of all Coroners, and their addresses in the City of Toronto, also the number of inquests held by each one, each year during the last five years, namely, from January 1st, 1912, until December 31st, 1918, also the amount of money each received, each year during the period named for their services as Coroners. Presented to the Legislature, 26th February, 1919. <i>Mr. Crawford. Not printed.</i> |
| No. 60 | Return to an Order of the House of the 7th March, 1918, for a Return shewing—1. How many persons who have been convicted and sentenced to imprisonment under the Ontario Temperance Act have been discharged without completing the term for which they were sentenced. 2. How many persons fined under the said Act have had their fines or some portion thereof remitted. Presented to the Legislature, 26th February, 1919. <i>Mr. Munro. Not printed.</i> |
| No. 61 | Return to an Order of the House of the 18th March, 1918, for a Return shewing—1. What number of accidents have been reported to and dealt with by the Workmen's Compensation Board for accidents caused to workmen engaged in Munition Plants. 2. What amount do the manufacturers of munitions pay in comparison to the amount paid by other manufacturers. 3. Is the amount based on a percentage higher than on manufacturers of a somewhat similar character so as to provide for the possibility |

of munition factories ceasing to operate within the near future and yet have large claims left to be provided for. Presented to the Legislature, 26th February, 1919. Mr. *Richardson*. *Not printed*.

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Return to an Order of the House of the 13th March, 1918, for a Return shewing copies of all communications and correspondence between the Attorney-General, J. H. Rodd, Crown Attorney for the County of Essex, Dr. St. Pierre and H. C. Maisonville of Windsor, Ontario, in the matter of an alleged conspiracy on the part of the said J. H. Rodd against the said St. Pierre and Maisonville in connection with the trouble which occurred at Ford City, Ontario, on or about the eighth day of September, 1917, and which led to the arrest of the said St. Pierre. Presented to the Legislature, 26th February, 1919. Mr. *Racine*. *Not printed*.

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Return to an Order of the House of the 21st March, 1918, for a Return of the copies of—1. All correspondence between the Minister of Lands, Forests and Mines, or any member, officer or official of the Government, and the firm of F. McGibbon & Sons, Lumber Merchants, Sarnia, or the firm McGibbon Lumber Company, of Penetanguishene, in reference to the renewal of the license granted to the last named company to cut timber on Franklin Island, in Parry Sound. 2. Copy of the original agreement with the McGibbon Lumber Company, of Penetanguishene, in which the said company was given the right to cut pine timber on the said island. 3. Copy of the license and renewals (if any) granted to the said McGibbon Lumber Company. 4. Copy of the agreement made with the license granted to the Hope Lumber Company of Thessalon, Ontario (now owned by White, Gratwich & Mitchell on Garden River), about the same time; and copies of all correspondence between the said Hope Lumber Company or White, Gratwich & Mitchell and the Government or any officer or official thereof in reference to the sale of timber to either company. 5. Copies of the renewals of licenses to the Hope Lumber Company or White, Gratwich & Mitchell (if any). 6. The date when the license to the McGibbon Lumber Company was cancelled. 7. How the money derived from the said license was expended. 8. The number of licenses which have been renewed during the present year in the District of Parry Sound, and in whose names these licenses stand. Presented to the Legislature, 26th February, 1919. Mr. *Proudfoot*. *Not printed*.

No. 64

Copies of Regulations and Orders-in-Council under Section 27 of the Department of Education Act. Presented to the Legislature, 3rd March, 1919. *Not printed*.

No. 65	Report of the Ontario Housing Committee, including standards for inexpensive houses adopted for Ontario with typical plans. Presented to the Legislature, 4th April, 1919. <i>Printed.</i>
No. 66	Regulations of the Provincial Board of Health <i>re</i> Communicable Diseases approved by His Honour. Presented to the Legislature, 20th March, 1919. <i>Not printed.</i>
No. 67	Return to an Order of the House of the 24th March, 1919, for a Return shewing:—1. How much money has been spent in connection with the soldiers' land settlement scheme at Kapuskasing. 2. How many acres have been cleared for crop; and what other improvements have been made, and by whom. 3. How many soldiers availed themselves of the opportunity afforded by the scheme. 4. How many soldiers are still there. 5. At what price <i>per</i> acre is this land available. Presented to the Legislature, 3rd April, 1919. Mr. <i>Bowman</i> (<i>Manitoulin</i>). <i>Not printed.</i>
No. 68	Return to an Order of the House of the 24th March, 1919, for a Return shewing:—1. How many Crown Land Agencies exist in the Districts of Muskoka and Parry Sound. 2. What are the names of the agents and dates of appointment. 3. What is the remuneration paid to each agent. 4. What are the duties of the agents. Presented to the Legislature, 3rd April, 1919. Mr. <i>Proudfoot</i> . <i>Not printed.</i>
No. 69	Return to an Order of the House of the 7th March, 1919, for a Return shewing if:—1. General Manly Sims had been appointed Agent-General for Ontario, at London, England. If so, at what date. 2. What is his age, and what period of time has he ever spent in Ontario, and in what employment. 3. Is he a native-born Canadian. 4. Is he a British or Canadian Officer. 5. If the former, why was not some qualified Canadian Officer from Ontario appointed to fill the Post. 6. Were any Canadian Officers applicants or recommended for the position, and if so, what were the names of such Officers and on what grounds was each respectively refused. 7. Was the appointment made upon the recommendation of the Civil Service Commissioner of Ontario. 8. What is the salary or remuneration that the Province of Ontario pays to General Sims, and what perquisites, if any, in addition to his salary does he receive. 9. Is the appointment a permanent one, or if not, for what period and on what terms as to time of service. Presented to the Legislature, 3rd April, 1919. Mr. <i>Dewart</i> . <i>Not printed.</i>
No. 70	Return to an Order of the House of the 24th March, 1919, for a Return shewing:—What are the details of the receipts by Corporations of the Provincial taxes included in the Revenue of the Department of Lands, Forests and Mines for the year end-

- ing October 31st, 1918, at page a32 at the sum of \$863,457.75. Presented to the Legislature, 3rd April, 1919. Mr. Pinard. *Not printed.*
- No. 71 Return to an Order of the House of the 4th day of April, 1919, for a Return shewing:—1. What is the total amount of the grants withheld from the Roman Catholic Schools of Ottawa. 2. In what years were such grants withheld. 3. What amount was withheld in each respective year. 4. Has the money for grants withheld from the Roman Catholic Separate Schools of Ottawa been kept in a separate fund. 5. Have these amounts been revoted in any succeeding session of the Legislature. Presented to the Legislature, 10th April, 1919. Mr. Pinard. *Not printed.*
- No. 72 Report of the Civil Service Commissioner, 1918. Presented to the Legislature, 10th April, 1919. *Printed.*
- No. 73 Return to an Order of the House of the 24th March, 1919, for a Return of:—1. Copies of all documents covering the original sale to one J. J. Carrick, of the City of Port Arthur, of certain pulpwood limits in the Pic River and Black Sturgeon River Districts of Thunder Bay. 2. Copies of all agreements connected therewith or supplementary thereto. 3. Copies of all letters and telegrams which passed between the Government or any member or official thereof and the said Carrick or any one on his behalf, in reference to the said limits.—Presented to the Legislature, 15th April, 1919. Mr. Proudfoot. *Not printed.*
- No. 74 Return to an Order of the House of the 4th March, 1919, for a Return shewing what building it is proposed to cover by insurance out of the following items appearing in the Supplementary Estimates for the fiscal year ending October 31st, 1919:—(a) \$4,000.00, Item No. 1, Vote No. 187; (b) \$1,000.00, Item No. 9, Vote No. 194. Presented to the Legislature, 15th April, 1919. Mr. Pinard. *Not printed.*
- No. 75 Report of the Bureau of Municipal Affairs *re* Housing, including Acts, Rules and Regulations, Housing Standards, Provisions and Forms for 1919. Presented to the Legislature, 15th April, 1919. *Not printed.*
- No. 76 Return to an Order of the House of the 28th March, 1919, for a Return shewing all correspondence between any Department of the Government or Minister, or Official, and the British America Nickel Corporation, Limited, or any Official or Director thereof or person representing the said Company, regarding the refining of Nickel or other Minerals by the said Company, the establishment of a Refinery or other works and the location of the same in Ontario, and as to the location of the Refinery where

	it is now being erected in the Province of Quebec, and all documents relating in any way thereto. Presented to the Legislature, 15th April, 1919. Mr. Dewart. <i>Not printed.</i>
No. 77	Copies of Orders-in-Council designating the Convalescent Home for Women, Ottawa, and the Salvation Army Women's Hospital, Bloor Street East, Toronto, as Hospitals to which aid may be granted pursuant to Section 14 of The Hospitals and Charities Institutions Act. Cap. 300, R.S.O., 1914. Presented to the Legislature, 17th April, 1919. <i>Not printed.</i>
No. 78	Report of the Soldiers' Aid Commission. Presented to the Legislature, 17th April, 1919. <i>Not printed.</i>

Fifty-first Annual Report

OF THE

Inspector of Prisons and Public Charities

UPON THE

Prisons and Reformatories

OF THE

PROVINCE OF ONTARIO

BEING FOR THE YEAR ENDING 31st OCTOBER

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

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PARLIAMENT BUILDINGS, TORONTO, January 24th, 1919.

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Colonel in the Militia
of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I beg to submit herewith the Fifty-first Annual Report upon the Prisons and
Reformatories being for the year ending 31st October, 1918.

I have the honour to be,

Your Honour's most obedient servant,

W. D. MCPHERSON,
Provincial Secretary.

TORONTO, December 17th, 1918.

SIR,—I have the honour to submit herewith, to be presented to His Honour the Lieutenant-Governor, the Fifty-first Annual Report upon the Prisons and Reformatories of the Province of Ontario, being for the year ending 31st October, 1918.

I have the honour to be, Sir,

Your obedient servant,

W. W. DUNLOP,

Inspector.

THE HONOURABLE W. D. MCPHERSON, M.P.P.,

*Secretary of the Province of Ontario,
Toronto.*

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FIFTY-FIRST ANNUAL REPORT

UPON THE

Gaols and District Lock-ups of Ontario

In presenting the Fifty-first Annual Report of the Gaols and Lock-ups of Ontario, I beg to submit the following statistics for the year ending September 30th, 1918.

(1) Number of Gaols in Ontario	46
Number of Provincial Lock-ups	4

(2) Total expenditure for Gaol maintenance in Ontario:

In 1917	\$194,955 10
In 1918	216,739 89
Increase	\$21,784 79

(3) The cash revenue from Gaol labour during 1918 was \$4,663.65, and was earned at Kingston and Ottawa.

Average cost per day for each prisoner in the County Gaols of Ontario was:

In 1917	40.62 cents.
In 1918	43.27 cents.

(4) Number of persons committed to Gaols and Lock-ups during the past two years was:

In 1917	12,445
In 1918	13,242

Increase during the past year	797
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Commitments for murder in 1917	32
Commitments for murder in 1918	34

Increase	2
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Commitments for manslaughter in 1917	16
Commitments for manslaughter in 1918	21

Increase	5
----------------	---

Commitments for crime against the person:

In 1917	514
In 1918	504
Decrease	10

Commitments for crime against property:

In 1917	2,671
In 1918	3,322
Increase	651

Commitments for crime against public morals and decency:

In 1917	664
In 1918	714
Increase	50

Commitments for crime against public order and peace:

In 1917	6,788
In 1918	5,494
Decrease	1,294

Number of insane committed to Gaols:

In 1917	225
In 1918	211
Decrease	14

Prisoners sentenced to the Penitentiary during the past year show an increase of 124 as compared with the previous year, and the number transferred to the Reformatories was 80 more than in 1917.

Number of prisoners sentenced in 1918	7,874
Number of prisoners sentenced in 1917	7,867
Increase	7

The percentage of sentences to commitments was:

In 1917	63.2
In 1918	59.4

The number of prisoners sentenced to terms over one year was 206 more than during the previous year.

The number confined in penal institutions of Ontario was 160 more on September 30th, 1918, than on the same date last year.

Of those committed during the year, 4,850 were married and 8,392 were single.

Habits of life of those committed to Gaols:

In 1917, number of commitments, 12,445; temperate, 4,652; percentage, 37.33.

In 1918, number of commitments, 13,242; temperate, 6,957; percentage, 52.53.

17.98 per cent. of the prisoners committed to the gaols during the past year could not read or write.

Number of days' stay of prisoners:

In 1917	176,923
In 1918	210,446
	<hr/>
Showing an increase of days	33,523

Escapes and captures:

Twenty-seven prisoners escaped during the year, of whom twenty-two were recaptured.

Deaths in Gaols:

In 1917	6
In 1918	4

The next table shows the number of prisoners (male and female) committed to each gaol during 1917 and 1918, and the increase and decrease in the commitments of the latter year compared with the former.

Name of Gaol.	Number of prisoners committed in the year ending 30th Sept., 1917.			Number of prisoners committed in the year ending 30th Sept., 1918.			Increase.			Decrease.		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Barrie	148	2	150	97	2	99	....	....	....	51	....	51
Belleville	194	9	203	212	12	224	18	3	21	....	....	....
Brantford	127	5	132	132	18	150	5	13	18	....	....	....
Brampton	28	1	29	32	2	34	4	1	5	....	....	....
Brockville	64	12	76	76	7	83	12	....	12	....	5	5
Bracebridge	17	3	20	47	5	52	30	2	32	....	....	....
Cayuga	24	2	26	18	1	19	....	....	....	6	1	7
Cornwall	32	2	34	43	3	46	11	1	12	....	....	....
Cobourg	82	4	86	68	5	73	....	1	1	14	....	14
Chatham	154	19	173	149	15	164	....	....	....	5	4	9
Fort Frances.....	81	1	82	141	1	142	60	....	60	....	....	....
Goderich.....	35	6	41	48	2	50	13	....	13	....	4	4
Guelph.....	46	5	51	33	....	33	....	....	....	13	5	18
Gore Bay	11	1	12	14	....	14	3	....	3	1	....	1
Hamilton	714	64	778	913	86	999	199	22	221	....	....	....
Kingston.....	86	6	92	103	8	111	17	2	19	....	....	....
Kitchener.....	91	7	98	86	8	94	....	1	1	5	....	5
Kenora	20	4	24	24	4	28	4	....	4	....	....	....
London	423	70	493	520	55	575	97	....	97	....	15	15
Lindsay	27	3	30	22	2	24	....	....	....	5	1	6
L'Orignal	17	1	18	29	1	30	12	....	12	....	....	....
Milton.....	48	....	48	32	2	34	....	2	2	16	....	16
Napanee	17	....	17	18	4	22	1	4	5	....	....	....
North Bay	175	12	187	174	22	196	....	10	10	1	....	1
Ottawa	815	142	957	810	133	943	....	....	....	5	9	14
Owen Sound.....	53	4	57	40	2	42	....	....	....	13	2	15
Orangeville	27	7	34	25	5	30	....	....	....	2	2	4
Perth.....	53	2	55	42	8	50	....	6	6	11	....	11
Picton	20	3	23	17	3	20	....	....	....	3	....	3
Pembroke.....	92	3	95	51	5	56	....	2	2	41	....	41
Peterborough....	128	29	157	119	16	135	....	....	....	9	13	22
Port Arthur.....	177	24	201	207	12	219	30	....	30	....	12	12
Parry Sound	233	6	239	342	12	354	109	6	115	....	....	....
Simcoe.....	31	5	36	30	1	31	....	....	....	1	4	5
St. Catharines.....	125	14	139	173	6	179	48	....	48	8	....	8
Sarnia	196	9	205	120	9	129	....	....	....	76	....	76
Stratford	46	2	48	86	8	94	40	6	46	....	....	....
Sandwich.....	332	21	353	275	11	286	....	....	....	57	10	67
St. Thomas	67	10	77	114	18	132	47	8	55	....	....	....
Sault Ste. Marie	242	31	273	240	25	265	....	....	....	2	6	8
Sudbury	809	37	846	746	32	778	....	....	....	63	5	68
Toronto.....	4,796	259	5,055	5,260	285	5,545	464	26	490	....	....	....
Walkerton	45	7	52	35	4	39	....	....	....	10	3	13
Woodstock	106	6	112	103	3	106	....	....	....	3	3	6
Welland	294	8	302	291	25	316	....	17	17	3	....	3
Whitby	60	2	62	36	3	39	....	1	1	24	....	24
Lock-ups:												
Atikokan.....	....	....	....	3	....	3	3	....	3	....	....	....
Byng Inlet.....	7	....	7	33	....	33	26	....	26	....	....	....
Cobalt.....	141	16	157	100	17	117	....	1	1	41	....	41
Mine Centre.....	3	....	3	5	....	5	2	....	2	....	....	....
	11,559	886	12,445	12,334	908	13,242	1255	135	1,390	489	104	593

The number of commitments in five-year periods for the past seventeen years is shown in the subjoined tables divided into five classes:

1. CRIMES AGAINST THE PERSON.

Nature of crime.	1902 to 1906	1907 to 1911	1912 to 1916	1917	1918
Assault, common.....	1,729	2,091	2,610	261	198
Assault, felonious.....	883	1,087	1,052	86	147
Cutting and wounding, stabbing and shooting with intent	350	475	546	81	63
Rape and assault with intent ..	245	272	289	33	30
Murder.....	130	144	150	32	34
Manslaughter.....	60	55	72	16	21
Attempt at suicide	85	123	127	5	11
Miscellaneous.....	14	68	382	.....	.....
Totals.....	3,496	4,315	5,228	514	504

2. CRIMES AGAINST PROPERTY.

Nature of crime.	1902 to 1906	1907 to 1911	1912 to 1916	1917	1918
Arson and incendiarism	156	134	238	28	25
Burglary	279	343	435	117	91
Counterfeiting and passing coun- terfeit money	31	31	20	1	2
Destroying and injuring pro- perty.....	333	279	384	46	29
Embezzlement	28	44	35	.....	54
Forgery	233	407	462	73	75
Fraud and obtaining money or goods under false pretenses..	627	1,059	1,857	246	309
Horse, cattle and sheep stealing	253	234	206	45	27
Housebreaking and robbery	723	929	1,434	241	231
Larceny	7,257	10,548	12,059	1,445	1,981
Receiving stolen goods.....	138	267	404	46	63
Trespass	1,928	1,919	3,511	128	102
Miscellaneous .....	.....	136	886	255	333
Totals.....	11,986	16,390	21,931	2,671	3,322

3. CRIMES AGAINST PUBLIC MORALS AND DECENCY.

Nature of crime.	1902 to 1906	1907 to 1911	1912 to 1916	1917	1918
Bigamy	106	159	204	60	69
Inmates and frequenters of houses of ill-fame.....	769	959	1,720	260	271
Keeping houses of ill-fame	443	698	1,420	155	143
Perjury.....	103	206	165	26	32
Seduction	106	252	255	34	46
Indecent assault and exposure...	455	616	880	85	102
Miscellaneous	210	204	190	44	51
Totals	2,192	3,094	4,834	664	714

4. OFFENCES AGAINST PUBLIC ORDER AND PEACE.

Nature of crime.	1902 to 1906	1907 to 1911	1912 to 1916	1917	1918
Abusive and obscene language..	172	160	141	12	4
Breaches of peace, breaches of by-laws, escapes from and obstructing constables.....	841	1,066	1,247	245	196
Carrying unlawful weapons....	207	299	339	33	38
Deserting employment.....	333	72	230	51	38
Drunk and disorderly.....	17,624	25,685	36,027	3,907	2,595
Deserting the Militia.....				348	421
Selling liquor without license, and selling or giving it to Indians.....	188	857	1,464	841	907
Threatening and seditious language	106	184	182	20	45
Vagrancy.....	7,900	10,233	15,328	1,274	1,219
Miscellaneous	698	322	290	57	31
Totals	28,069	38,878	55,248	6,788	5,494

5. OTHER CAUSES FOR WHICH PERSONS WERE DETAINED AS PRISONERS.

Nature of crime.	1902 to 1906	1907 to 1911	1912 to 1916	1917	1918
Contempt of Court	345	306	438	49	28
Debtors	53	62	131	12	56
Detained as witnesses	73	109	192	35	15
Lunatics and persons dangerous to be at large	1,897	1,862	1,765	225	201
Non-payment of fines and costs . .....	.....	3	.....	.....	.....
Want of sureties to keep the peace.....	119	333	253	10	8
Other offences not classified in foregoing	1,292	2,318	5,429	1,477	2,900
Totals.....	3,779	4,993	8,208	1,808	3,208
Total number of persons com- mitted for the respective years	49,532	67,670	95,449	12,445	13,242

STATISTICAL TABLES

A table showing the number of commitments to each gaol for drunkenness during compared, and the increase or de-

Name of gaol.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Barrie	34	34	19	10	21	9	24	21	11	10	16	12	21
Belleville	49	34	18	24	25	19	16	12	13	16	12	11	20
Brantford.....	182	112	89	120	125	124	106	115	85	64	88	74	82
Brampton.....	30	17	.....	9	9	11	6	2	3	4	4	4	5
Brockville	58	44	44	77	86	70	43	48	49	45	41	58	66
Bracebridge.....	15	19	5	5	5	4	4	3	2	3	.....	5	5
Cayuga	15	22	7	.....	5	6	6	9	10	13	10	19	12
Cornwall.....	25	14	22	27	10	24	9	11	28	21	19	12	15
Cobourg	38	22	25	11	19	18	16	12	15	20	10	16	14
Chatham.....	71	47	26	28	22	67	9	13	13	15	18	18	11
Fort Frances.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33
Goderich.....	5	5	2	3	3	.....	.....	2	1	2	5	5	1
Guelph.....	10	4	14	9	23	17	7	9	9	3	13	4	13
Gore Bay.....	4	1	2	1	2	3	.....	.....	.....	.....	.....	.....	1
Hamilton.....	418	251	142	148	55	36	60	56	60	66	96	108	97
Kingston.....	120	125	87	102	72	89	49	51	50	48	31	47	40
Kitchener.....	17	13	4	6	7	7	10	12	10	7	4	4	11
Kenora.....	66	66	81	75	65	31	76	26	111	110	23	34	36
London.....	332	213	150	218	219	187	177	139	163	172	137	137	250
Lindsay.....	5	1	5	2	5	2	5	4	5	6	7	8	8
L'Orignal .....	.....	5	1	2	1	3	2	2	.....	2	2	.....	3
Milton.....	9	9	6	4	8	3	8	3	4	2	4	4	4
Napanee.....	22	23	12	9	20	8	6	5	13	4	7	4	7
North Bay	35	16	14	15	7	10	5	.....	4	.....	3	12	5
Ottawa.....	326	204	182	105	111	157	152	165	137	135	224	293	221
Owen Sound	17	13	14	11	6	.....	8	6	11	7	8	12	16
Orangeville	2	1	2	.....	.....	.....	.....	.....	1	.....	3	.....	.....
Perth.....	5	5	3	2	3	6	2	2	7	9	7	12	17
Pictou	33	19	11	11	21	11	22	31	23	30	35	19	21
Pembroke.....	1	..	5	7	4	7	3	5	5	.....	1	4	1
Peterborough	45	24	22	16	15	13	10	11	11	10	6	13	9
Port Arthur.....	12	4	3	4	1	3	5	12	4	2	9	8	7
Parry Sound	9	.....	2	4	5	7	2	3	3	5	8	4	5
Simcoe.....	3	10	5	3	11	17	6	6	16	10	11	6	12
St. Catharines.....	24	12	9	21	17	26	23	5	17	10	15	33	21
Sarnia	108	95	27	36	69	116	57	62	49	61	48	45	71
Stratford.....	14	4	7	9	15	7	10	15	5	1	9	12	8
Sandwich.....	35	57	38	11	19	39	16	23	20	16	27	18	31
St. Thomas	20	32	12	15	19	22	13	12	8	17	23	9	6
Sault Ste. Marie	12	10	12	8	5	2	12	9	8	7	7	21	16
Sudbury	55	77	5	119	38	42	25	41	34	54	197	222	172
Toronto.....	2,085	1,783	1,444	1,207	960	918	790	569	592	796	1,031	1,022	1,107
Walkerton.....	6	7	3	13	8	21	5	3	1	4	4	.....	1
Woodstock.....	51	34	24	38	21	29	37	35	32	31	21	39	36
Welland.....	16	7	13	12	11	19	17	16	14	19	20	24	23
Whitby.....	2	.....	1	2	1	2	.....	1	4	5	2	3	5
Lock-ups :													
Atikokan .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Burk's Falls	1	.....	.....	.....	.....	2	1	.....	1	.....	.....	4	1
Byng Inlet .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cobalt .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Killarney .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manitowaning	33	33	22	16	5	16	4	2	4	5	7	10	12
Mine Centre.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Webbwood.....	.....	.....	.....	.....	.....	.....	9	7	6	2	9	17	48
Totals.....	4,475	3,528	2,641	2,575	2,174	2,236	1,873	1,596	1,672	1,869	2,282	2,446	2,627

the years 1890 to 1918, both inclusive. The figures for 1917 and 1918 are crease in each place is shown.

1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	Increase. 1918.	Decrease, 1918.
14	16	27	46	58	39	29	59	51	57	64	140	73	43	6	4	.....	2
6	12	6	15	34	67	33	61	89	56	110	63	106	57	23	2	.....	21
136	162	143	153	239	178	148	122	129	161	131	108	162	193	25	33	8	.....
3	4	8	10	5	1	5	1	10	8	14	2	11	4	4	2	.....	2
55	50	50	91	86	63	40	54	59	49	83	62	56	60	12	7	.....	5
9	8	13	7	3	9	6	6	3	1	3	4	1	.....	1	.....	.....	1
5	11	10	13	7	4	3	5	5	6	4	5	7	10	1	.....	.....	1
18	17	14	7	7	12	32	16	10	9	16	27	20	9	7	6	.....	1
12	12	7	18	21	16	27	36	22	35	39	36	16	60	22	2	.....	20
9	8	16	16	27	28	30	36	36	44	46	83	55	84	27	14	.....	13
.....	.....	42	.....	15	15	16	28	55	57	184	149	52	42	30	10	.....	20
2	8	14	3	1	3	18	5	8	6	13	6	13	8	2	3	1	.....
4	6	12	7	6	4	5	10	7	3	9	16	14	2	.....	4	4	.....
3	3	.....	6	2	7	2	.....	5	1	.....	.....	3	4	.....	3	3	.....
188	229	287	290	394	360	413	479	580	702	986	603	494	761	129	109	.....	20
58	62	59	54	66	64	83	109	90	107	135	129	203	115	28	23	.....	5
15	10	17	19	9	12	15	13	18	24	30	48	34	32	18	7	.....	11
37	21	19	19	88	92	33	6	15	101	25	19	7	8	4	4	.....	.....
157	262	249	248	218	328	424	325	395	361	483	500	520	473	155	196	41	.....
8	10	10	2	6	11	8	12	30	7	3	9	5	3	1	1	.....	.....
1	3	4	2	.....	1	1	.....	2	1	5	2	1	1	1	.....	.....	1
8	12	7	11	6	6	8	7	4	12	11	12	4	8	3	6	3	.....
3	5	8	13	12	19	21	18	21	23	25	45	18	18	.....	.....	.....	.....
73	99	171	73	103	46	38	40	18	88	90	93	55	19	8	2	.....	6
267	247	338	257	338	425	380	408	307	324	248	346	281	177	391	187	.....	204
13	10	5	6	10	13	15	41	73	65	18	17	24	10	10	2	.....	8
.....	.....	.....	1	.....	.....	.....	.....	1	3	1	1	1	.....	1	.....	.....	1
34	20	2	20	24	27	17	19	8	20	31	22	19	13	.....	7	7	.....
18	18	28	8	21	42	25	33	31	26	28	32	47	50	2	3	1	.....
7	1	6	7	8	11	20	7	8	20	50	50	44	27	13	3	.....	10
14	23	13	24	33	22	27	23	40	37	119	143	87	71	11	1	.....	10
50	25	27	67	164	183	209	195	232	301	434	444	212	111	42	17	.....	25
25	10	35	153	68	26	25	28	35	50	58	55	79	516	35	30	.....	5
11	15	12	13	28	50	37	37	39	41	8	32	25	26	2	2	.....	.....
28	20	33	20	20	25	43	42	73	67	60	102	82	80	31	13	.....	18
57	69	67	73	69	59	80	92	76	90	157	237	138	132	115	42	.....	73
15	19	46	35	21	42	24	29	29	36	67	73	34	36	5	1	.....	4
42	29	19	32	29	38	23	28	32	31	65	44	31	28	116	32	.....	84
5	8	2	4	3	12	15	19	11	5	17	48	30	12	4	11	7	.....
79	15	38	18	32	47	23	32	49	66	75	73	75	39	59	32	.....	27
49	164	117	253	281	223	268	288	316	508	1,054	1,643	658	531	211	125	.....	86
1,286	1,575	1,832	1,923	2,016	2,003	2,208	2,398	2,669	2,866	3,209	3,073	2,217	1,939	2,217	1,593	.....	624
1	1	.....	5	8	4	4	6	9	6	5	4	9	4	2	1	.....	1
41	31	22	17	24	34	31	32	41	45	52	77	69	86	9	19	10	.....
24	87	32	24	23	28	21	26	29	55	60	131	110	30	95	16	.....	79
2	11	10	29	12	8	18	14	12	8	10	17	14	16	2	1	.....	1
.....
1	4	4	3	5	2	.....	7	4	.....	1	.....	.....	.....	.....	.....	.....	.....
.....	.....	5	.....	.....	.....	.....	29	11	.....	.....	.....	4	6	3	.....	.....	3
.....	.....	.....	.....	.....	.....	.....	.....	25	10	1	20	11	13	22	15	.....	7
3	6	21	.....	10	10	16	4	3	.....	2	.....	.....	.....	.....	.....	.....	.....
.....	.....	10	.....	9	9	8	1	2	7	20	.....	.....	.....	.....	.....	.....	.....
17	14	16	18	56	8	.....	.....	.....	6	4	3	4	1	2	4	2	.....
2,913	3,452	3,941	4,133	4,748	4,736	4,997	5,291	5,827	6,613	8,363	8,848	6,235	5,963	3,907	2,595	87	1,399

The disposition made of the persons committed to the gaols of the Province is set forth in the table printed below:

	1918
Acquitted on being brought to trial, and discharged	1,685
Discharged without trial by order of judges, magistrates and courts, including remand cases	2,687
Detained for want of securities to keep the peace	19
Detained as witnesses	22
Detained as fraudulent debtors	64
Detained as lunatics, idiots and persons unsafe to be at large	211
Died before trial	3
Detained by civil processes other than above	164
Waiting trial and otherwise detained on 30th September, 1918	172
Found guilty and sentenced	7,874
Discharged under suspended sentence	341
Total number of commitments	13,242

The places of confinement to which the convicted persons were sentenced are set forth in the following statement, and similar information is given as regards the sentenced prisoners of the previous year:

	1917	1918
Sentenced to Kingston Penitentiary	166	290
do to the Industrial School	370	221
do direct to Central Prison	695	709
do to the Common Gaols and subsequently transferred to the Central Prison	1,902	1,982
do direct to the Reformatory for Females	70	101
do to the Common Gaols and subsequently transferred to the Reformatory for Females	26	22
do to the Common Gaols and there detained until the expiration of sentence	4,632	4,542
Died while undergoing sentence	6	7
Totals	7,867	7,874

The summaries given below show the nature of the offence committed by the convicted persons:

I. Crimes against the Person.

	Total commitments for the year.	Number found guilty and sentenced.
Assault, common	198	95
Assault, felonious	147	50
Cutting and wounding, stabbing and shooting with intent	63	25
Rape and assault with intent	30	10
Murder	34	6
Manslaughter	21	3
Attempted suicide	11	2
Totals	504	191

2. Crimes against Property.

	Total commitments for the year.	Number found guilty and sentenced.
Arson and incendiarism	25	11
Burglary	91	57
Counterfeiting and passing counterfeit money..	2	1
Destroying and injuring property	29	15
Embezzlement	54	..
Forgery	75	44
Fraud and obtaining money and goods under false pretences	309	129
Horse, cattle and sheep stealing	27	19
Housebreaking and robbery	231	144
Larceny	1,981	1,084
Receiving stolen goods	63	22

	Total commitments for the year.	Number found guilty and sentenced.
Trespass	102	47
Miscellaneous	333	41
Totals	3,322	1,614

3. Crimes against Public Morals and Decency.

	Total commitments for the year.	Number found guilty and sentenced.
Bigamy	69	59
Inmates and frequenters of houses of ill-fame ..	271	69
Keeping houses of ill-fame	143	77
Perjury	32	13
Seduction	46	12
Indecent assault and exposure	102	56
Miscellaneous	51	34
Totals	714	320

4. Offences against Public Order and Peace.

	Total commitments for the year.	Number found guilty and sentenced.
Abusive and obscene language	4	2
Breaches of peace, breaches of by-laws, escapes from and obstructing constables	196	110
Carrying unlawful weapons	38	26
Deserting employment, etc.	38	75
Drunk and disorderly	2,595	2,177
Deserting the militia	421	191
Selling liquor without a license and selling or giving it to Indians	907	652
Threatening and seditious language	45	9
Vagrancy	1,219	493
Miscellaneous	31	17
Total	5,494	5,795
Contempt of court, lunatics, etc.	308	23
Other offences, not classified in foregoing	2,900	2,056
Grand total	13,242	7,874

The following tables show the period of sentence passed on the convicted prisoners and the sex, social conditions, habits, etc., of the total number of prisoners committed:

Periods of Sentence.

	1917	1918
For periods under thirty days	3,039	2,649
For thirty days and up to sixty days, or two months, not including the last term	1,712	1,199
For sixty days, or two months	412	415
Over two months to three months	1,315	1,540
Over three months to four months	223	264
Over four months to five months	59	90
Over five months to six months	468	628
Over six months to nine months	58	154
Over nine months up to one year, inclusive	120	217
Over one year and up to two years	176	270
Over two years and up to three years in the Penitentiary	94	143
Over three years in the Penitentiary	41	104
For periods of any length in the Industrial Schools	143	192
Sentenced to death and executed .....	..	1
Sentenced to death and commuted to imprisonment	2	2
Sentenced to imprisonment with corporal punishment	5	6
	7,867	7,874

	<i>Sex.</i>	
	1917	1918
Male	11,559	12,826
Female	886	416
	<hr/> 12,445	<hr/> 13,242

<i>Social Conditions.</i>		
	1917	1918
Married	4,618	4,850
Unmarried	7,827	8,392
	<hr/> 12,445	<hr/> 13,242

<i>Habits.</i>		
	1917	1918
Temperate	4,652	6,957
Intemperate	7,793	6,285
	<hr/> 12,445	<hr/> 13,242

<i>Educational Status.</i>		
	1917	1918
Could read and write	10,806	10,860
Could neither read nor write	1,639	2,382
	<hr/> 12,445	<hr/> 13,242

<i>Nationality.</i>		<i>Religious Denomination.</i>	
Canadian	7,103	Roman Catholic	5,760
English	956	English Church	2,161
Irish	366	Presbyterian	1,571
Scotch	392	Methodist	1,713
United States	844	Other denominations	2,037
Other countries	3,581		<hr/> 13,242
	<hr/> 13,242		

The number of prisoners confined in the various custodial institution of the Province at the close of the past official year, and the year preceding, is exhibited in the following summary:

	1917	1918
In the Common Gaols	519	543
In the Reformatory for Females and Refuge for Girls, Toronto....	96	89
In the Dominion Penitentiary, Kingston	389	446
In the Industrial Farm, Burwash	312	312
In the Industrial Farm, Fort William	29	56
In the Toronto Municipal Farm, Langstaff	171	240
In the Ontario Reformatory Clay Plant, Mimico	51	41
	<hr/> 1,567	<hr/> 1,727

STATISTICAL TABLES.

Following this portion of the report will be found the tables named in the list given hereunder:

- Table No. 2, showing the total number of prisoners in the several gaols on the 30th September, 1918, and the nature of their imprisonment; also showing number of cells in each gaol.
- Table No. 3, showing the number of prisoners over and under 16 years of age, the number of recommitments, the number of persons acquitted on being brought to trial, and the number of persons committed under civil processes.
- Table No. 4, showing the offences for which prisoners were sentenced.
- Table No. 5, showing the number of prisoners, male and female, sentenced under each offence during the year.
- Table No. 6, showing the social status and habits of the prisoners committed during the year.
- Table No. 7, showing the number of prisoners upon whom sentence was passed, the nature of the sentences, and the operation of the County Judge's Criminal Courts.
- Table No. 8, showing how the prisoners committed during the year were maintained, the cost thereof, and the salaries of officials.
- Table No. 9, showing the number of escapes and deaths, the revenue derived from prison labour, the cost of diet, accommodation of the gaols, and the highest and lowest number of prisoners in custody in each gaol during the year.
- Table No. 10, showing the daily cost per prisoner in each of the gaols of the Province, for the year ending 30th September, 1918.
- Table No. 11, showing the number of prisoners, male and female, sentenced during the year ending 30th September, 1918, and a comparison of the same with the previous year.

GAOL EXPENDITURES.

TABLE No. 1.

Showing the cost of maintaining the Common Gaols during the past thirty-nine years, under the heading of rations, clothing, fuel, salaries and wages, and repairs.

Year.	Total number of prisoners in custody each year.	Cost of rations, clothing, fuel, etc., each year.	Cost of salaries and wages of gaol officials each year.	Cost of repairs.	Total gaol expenditure.
		\$ c.	\$ c.	\$ c.	\$ c.
1879.....	11,229	58,856 24	63,914 40	5,583 44	122,355 08
1880.....	11,300	49,037 14	64,084 34	3,504 96	116,626 44
1881.....	9,229	45,001 05	63,502 00	3,410 12	111,915 15
1882.....	9,620	44,768 92	63,794 30	4,665 52	113,228 75
1883.....	9,880	44,783 50	64,935 96	4,706 20	114,425 66
1884.....	12,081	61,909 89	68,446 88	7,125 50	127,482 27
1885.....	11,426	54,321 35	70,344 96	5,081 55	129,747 86
1886.....	10,645	53,300 43	71,690 76	8,753 07	133,744 26
1887.....	11,017	48,650 27	71,291 58	6,146 71	126,088 56
1888.....	12,454	53,961 25	73,633 11	6,509 13	134,143 49
1889.....	12,531	55,002 89	77,677 84	3,313 20	135,983 93
1890.....	11,810	51,446 99	79,394 49	9,171 01	140,012 49
1891....	10,423	58,110 73	79,741 59	12,183 02	150,035 34
1892.....	9,011	51,505 57	75,564 83	4,635 65	135,706 05
1893.....	8,619	49,762 40	79,639 81	8,083 50	137,485 71
1894.....	9,450	45,115 58	79,790 80	6,728 04	131,634 42
1895.....	9,380	50,591 40	79,677 17	6,304 58	136,573 15
1896.....	9,058	49,107 73	80,940 04	6,778 50	135,826 27
1897.....	8,884	51,066 56	80,863 60	10,248 93	143,179 09
1898.....	8,256	50,412 91	80,915 05	5,982 56	167,310 52
1899.....	8,203	50,362 88	82,047 98	4,206 66	132,617 50
1900.....	8,604	50,353 75	82,144 05	4,944 21	137,442 10
1901.....	8,546	48,977 86	82,305 15	6,065 44	137,348 45
1902.....	8,280	49,125 35	85,350 04	6,515 40	140,990 79
1903.....	9,261	57,252 84	86,081 95	7,122 23	150,457 02
1904..	10,146	59,916 13	89,164 98	5,413 09	154,494 20
1905.....	11,035	64,948 78	91,232 56	7,087 09	163,268 43
1906.....	10,810	59,874 67	91,663 85	6,635 49	158,174 01
1907.....	11,804	61,995 01	95,321 24	7,536 14	164,852 39
1908.....	13,083	68,468 72	98,651 71	8,708 79	175,829 20
1909.....	13,535	74,557 65	103,141 14	6,877 58	184,576 37
1910.....	13,687	66,042 87	102,649 54	10,574 71	181,851 05
1911.....	15,275	70,077 87	106,690 02	7,759 74	187,626 11
1912.....	16,985	83,708 63	114,462 75	5,765 38	203,936 76
1913.....	19,250	77,828 15	116,704 08	8,542 59	203,074 82
1914.....	22,777	87,825 99	124,516 23	9,128 51	221,470 73
1915.....	20,337	87,403 52	120,742 08	6,840 72	214,986 32
1916.....	16,100	69,918 14	119,727 46	5,646 14	195,291 74
1917.....	12,445	71,971 09	115,053 82	7,930 19	194,955 10
1918.....	13,242	91,065 25	118,598 21	7,076 43	216,739 89

A summary is given below showing the days' stay respectively of those prisoners whose maintenance was chargeable to the Province and of those who were a charge on the Municipalities :—

	Days' stay.
5,079 Criminal prisoners remained in gaol	110,813
8,163 Municipal " " "	99,633
13,242 Prisoners in all " "	210,446

TABLE No. 2.

Showing the total number of prisoners who were in the several gaols of the Province on the evening of the 30th September, 1918, and the nature of their imprisonment; also number of cells in each gaol.

Name of gaol.	Classification.				Nature of Imprisonment.						Total number of persons who remained in custody 30th September, 1918.	Total number of cells.
	Men.	Women.	Boys under 16 years.	Girls under 16 years.	Waiting trial.	Under sentence for periods of 2 months and under.	Under sentence for periods over 2 months.	In default of sureties to keep the peace.	Insane, idiotic or imbecile persons.	Otherwise detained.		
Barrie.....	8	...	...	...	...	...	7	1	...	...	8	23
Belleville	17	1	...	...	4	5	9	...	...	...	18	38
Brantford	6	1	...	...	1	1	5	...	...	...	7	24
Brampton	4	...	...	...	...	...	3	...	...	1	4	25
Brockville	6	...	...	...	...	1	5	...	...	...	6	33
Bracebridge	6	...	...	...	2	...	4	...	...	...	6	15
Cayuga	2	...	...	...	...	1	1	...	...	...	2	14
Cornwall	7	1	...	...	1	...	7	...	...	...	8	17
Cobourg	9	...	...	...	2	2	5	...	...	...	9	24
Chatham	8	1	1	...	4	1	5	...	...	...	10	38
Fort Frances....	8	1	...	...	4	...	3	...	1	1	9	10
Goderich	3	1	...	...	...	1	3	...	...	...	4	12
Guelph .....	...	...	...	...	...	...	...	...	...	...	...	18
Gore Bay	1	...	...	...	1	1	...	...	...	...	1	12
Hamilton	41	5	...	...	10	9	26	...	...	1	46	75
Kingston	12	...	...	...	2	1	9	...	...	...	12	49
Kitchener	1	1	...	...	...	...	2	...	...	...	2	20
Kenora	3	...	...	...	...	2	1	...	...	...	3	14
London	20	...	...	...	6	1	13	...	...	...	20	57
Lindsay .....	...	...	...	...	...	...	...	...	...	...	...	24
L'Orignal	12	1	...	...	...	4	8	...	...	1	13	18
Milton	1	...	...	...	...	...	1	...	...	...	1	18
Napanee.....	3	1	...	...	1	1	...	...	...	2	4	18
North Bay.....	15	2	...	...	8	...	7	...	1	1	17	20
Ottawa.....	38	10	...	...	17	8	23	...	...	...	48	93
Owen Sound	10	...	...	...	...	4	5	...	1	...	10	32
Orangeville.....	9	1	1	...	1	1	8	...	1	...	11	22
Perth	6	1	...	...	1	...	5	...	1	...	7	18
Picton.....	...	...	...	...	...	...	...	...	...	...	...	13
Pembroke.....	3	1	...	...	1	...	3	...	...	...	4	24
Peterborough ...	9	...	...	...	1	...	8	...	...	...	9	13
Port Arthur	19	3	...	...	2	4	9	...	4	3	22	40
Parry Sound....	6	3	...	...	2	1	4	...	2	...	9	26
Simcoe.....	...	...	...	...	...	...	...	...	...	...	...	18
St. Catharines ..	9	2	2	...	3	6	4	...	...	...	13	38
Sarnia	2	...	...	...	...	1	1	...	...	...	2	13
Stratford	5	1	...	...	1	2	3	...	...	...	6	30
Sandwich	24	1	...	...	10	3	12	...	...	...	25	58
St. Thomas	7	1	...	...	4	1	3	...	...	...	8	16
Sault Ste. Marie	15	5	...	...	4	1	14	...	1	...	20	23
Sudbury.....	29	2	...	...	5	3	10	...	2	11	31	22
Toronto	77	8	...	...	48	22	15	...	...	...	85	270
Walkerton.....	2	...	...	...	1	...	1	...	...	...	2	24
Woodstock	9	...	...	...	...	1	8	...	...	...	9	32
Welland.....	8	2	...	...	1	3	6	...	...	...	10	48
Whitby	1	1	...	...	...	...	1	...	1	...	2	28
Lock-ups :												
Atikokan .....	...	...	...	...	...	...	...	...	...	...	...	3
Byng Inlet.....	...	...	...	...	...	...	...	...	...	...	...	7
Cobalt .....	...	...	...	...	...	...	...	...	...	...	...	6
Mine Centre ..	...	...	...	...	...	...	...	...	...	...	...	3
Totals.....	481	58	4	...	148	91	267	1	15	21	543	1,546

TABLE

Showing the number of persons committed, the number over and under sixteen years of age, the sound mind, number acquitted on trial, number discharged without trial, number

Name of gaol.	Total number committed during the year.			Number under 16 years of age.			Number over 16 years of age.			For the first time.	For the second time.
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.		
Barrie.....	97	2	99	5	.....	5	92	2	94	71	21
Belleville.....	212	12	224	12	.....	12	200	12	212	212	7
Brantford.....	132	18	150	2	.....	2	130	18	148	124	12
Brampton.....	32	2	34	4	.....	4	28	2	30	31	2
Brockville.....	76	7	83	6	.....	6	70	7	77	64	13
Bracebridge.....	47	5	52	.....	.....	.....	47	5	52	39	13
Cayuga.....	18	1	19	.....	1	1	18	.....	18	13	2
Cornwall.	43	3	46	2	.....	2	41	3	44	22	8
Cobourg	68	5	73	2	.....	2	66	5	71	45	11
Chatham.....	149	15	164	11	2	13	138	13	151	118	30
Fort Frances.....	141	1	142	.....	.....	.....	141	1	142	138	3
Goderich.....	48	2	50	1	.....	1	47	2	49	42	6
Guelph.....	33	.....	33	1	.....	1	32	.....	32	26	7
Gore Bay.....	14	.....	14	2	.....	2	12	.....	12	9	2
Hamilton.....	913	86	999	1	.....	1	912	86	998	712	109
Kingston.....	103	8	111	.....	.....	.....	103	8	111	92	8
Kitchener.....	86	8	94	.....	.....	.....	86	8	94	66	15
Kenora.....	24	4	28	.....	.....	.....	24	4	28	28	.....
London.....	520	55	575	21	1	22	499	54	553	358	126
Lindsay.....	22	2	24	.....	.....	.....	22	2	24	20	4
L'Orignal.....	29	1	30	.....	.....	.....	29	1	30	30	.....
Milton.....	30	4	34	1	.....	1	29	4	33	23	6
Napanee.....	18	4	22	.....	.....	.....	18	4	22	14	4
North Bay.....	174	22	196	.....	.....	.....	174	22	196	193	3
Ottawa.....	810	133	943	8	.....	8	802	133	935	876	49
Owen Sound.....	40	2	42	.....	.....	.....	40	2	42	26	9
Orangeville.....	25	5	30	3	.....	3	22	5	27	28	2
Perth.....	42	8	50	.....	.....	.....	42	8	50	33	11
Picton.....	17	3	20	2	.....	2	15	3	18	20	.....
Pembroke.....	51	5	56	.....	.....	.....	51	5	56	54	1
Peterborough..	119	16	135	1	.....	1	118	16	134	79	37
Port Arthur.....	207	12	219	1	.....	1	206	12	218	217	2
Parry Sound.....	342	12	354	1	.....	1	341	12	353	333	17
Simcoe.....	30	1	31	.....	.....	.....	30	1	31	22	6
St. Catharines.....	173	6	179	10	.....	10	163	6	169	154	16
Sarnia.....	120	9	129	13	.....	13	107	9	116	104	16
Stratford.....	86	8	94	.....	.....	.....	86	8	94	75	10
Sandwich.....	275	11	286	.....	.....	.....	275	11	286	274	2
St. Thomas.....	114	18	132	7	.....	7	107	18	125	89	21
Sault Ste. Marie....	240	25	265	9	2	11	231	23	254	211	32
Sudbury.....	732	46	778	1	2	3	731	44	775	734	43
Toronto.....	5,260	285	5,545	.....	.....	.....	5,260	285	5,545	5,184	239
Walkerton.....	35	4	39	4	.....	4	31	4	35	27	7
Woodstock.....	103	3	106	2	1	3	101	2	103	78	10
Welland.....	291	25	316	.....	.....	.....	291	25	316	286	27
Whitby.....	36	3	39	2	.....	2	34	3	37	27	8
Lock-ups :											
Atikokan.....	3	.....	3	.....	.....	.....	3	.....	3	2	1
Byng Inlet.....	33	.....	33	.....	.....	.....	33	.....	33	33	.....
Cobalt.....	100	17	117	1	1	2	99	16	115	117	.....
Mine Centre....	5	.....	5	.....	.....	.....	5	.....	5	5	.....
Totals.....	12,318	924	13,242	136	10	146	12,182	914	13,096	11,578	978

No. 3.

number of re-committals, the number for want of sureties to keep the peace, number of un-
waiting trial, number sentenced, and number committed under civil process.

For the third time.	For more than the third time.	For want of sureties to keep the peace.	Witnesses.	Lunatics and idiots.	Fraudulent debtors.	Under civil process.	Acquitted on trial and discharged.	Discharged without trial.	Discharged un- der suspend- ed sentence.	Died before trial.	Waiting trial.	Sentenced for any period.
3	4	2	.....	1	1	2	12	10	9	.....	.....	62
4	1	.....	1	2	3	137	.....	.....	9	.....	5	67
4	10	.....	1	6	.....	.....	89	.....	.....	.....	1	53
1	.....	.....	.....	.....	.....	.....	9	3	13	.....	1	8
2	4	.....	.....	3	.....	6	9	3	18	.....	1	43
.....	.....	5	.....	7	1	.....	3	6	2	.....	2	26
2	2	.....	.....	.....	.....	.....	5	.....	3	.....	.....	11
10	6	.....	.....	3	2	.....	3	.....	4	.....	1	33
4	13	.....	.....	7	.....	.....	4	13	12	.....	2	35
15	1	.....	.....	1	.....	.....	70	.....	18	.....	4	71
1	.....	.....	.....	6	.....	.....	49	.....	.....	.....	.....	87
1	1	.....	.....	5	1	1	11	.....	1	.....	.....	31
.....	.....	.....	.....	.....	.....	.....	.....	5	2	.....	.....	26
1	2	.....	.....	.....	.....	.....	2	.....	.....	.....	1	11
47	131	11	.....	31	.....	.....	11	302	15	.....	10	619
4	7	.....	.....	2	1	1	26	.....	.....	1	4	76
7	6	.....	3	6	.....	.....	2	22	19	.....	.....	42
.....	.....	.....	.....	1	.....	.....	22	.....	.....	.....	.....	5
22	69	.....	.....	15	.....	.....	223	2	2	.....	6	327
.....	.....	.....	.....	5	.....	.....	11	.....	5	.....	.....	3
.....	.....	.....	.....	3	.....	.....	.....	2	5	.....	.....	20
5	.....	.....	.....	.....	.....	4	3	5	3	.....	.....	19
2	2	.....	.....	.....	.....	.....	3	.....	3	.....	1	15
.....	.....	.....	.....	23	.....	.....	21	.....	1	1	8	142
13	5	.....	1	.....	36	.....	430	.....	.....	.....	17	459
2	5	.....	.....	1	3	.....	6	.....	2	.....	.....	30
.....	.....	.....	.....	4	.....	.....	.....	9	.....	.....	1	16
2	4	.....	.....	3	.....	.....	6	.....	3	.....	3	35
.....	.....	.....	.....	1	.....	.....	.....	19	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	2	.....	3	.....	1	50
13	6	.....	.....	10	.....	.....	19	60	2	.....	1	43
.....	.....	.....	.....	16	.....	.....	25	.....	1	.....	2	175
2	2	.....	.....	11	.....	.....	78	22	13	.....	5	225
.....	3	.....	.....	1	2	.....	3	.....	1	.....	3	21
4	5	.....	.....	1	7	.....	20	.....	2	.....	3	146
6	3	1	.....	.....	.....	.....	.....	49	8	.....	.....	71
9	.....	.....	.....	.....	.....	.....	15	16	11	.....	1	51
4	6	.....	3	1	1	.....	72	.....	23	.....	10	176
15	7	.....	.....	1	1	.....	61	1	15	.....	4	49
17	5	.....	.....	17	1	1	47	24	.....	.....	4	171
1	.....	.....	5	9	.....	.....	109	5	18	.....	4	628
56	66	.....	8	.....	3	.....	140	1,956	74	1	48	3,315
3	2	.....	.....	.....	.....	.....	1	3	3	.....	17	15
9	9	.....	.....	2	1	.....	30	.....	7	.....	.....	66
1	2	.....	.....	.....	.....	.....	6	119	.....	.....	1	190
4	.....	.....	.....	2	.....	.....	11	.....	2	.....	.....	24
.....	.....	.....	.....	1	.....	.....	.....	2	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	12	.....	20	.....	.....	.....	1
.....	.....	.....	.....	3	.....	.....	12	9	9	.....	.....	84
.....	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	1
296	390	19	22	211	64	164	1,685	2,687	341	3	172	7,874

TABLE

Showing offences for which prisoners were sentenced

Name of gaol.	Abortion.	Abusive and obscene language.	Arson.	Assault.	Assault, felonious.	Attempted suicide.	Abduction.	Bigamy.	Breaches of the peace.	Breaches of by-laws.	Burglary.
Barrie								1	3		
Belleville				1	2			1			
Brantford											
Brampton											
Brockville		2			1			1			
Bracebridge			1								
Cayuga											
Cornwall	1			2	1	1		1			1
Cobourg			1					1			
Chatham				1	1				1	10	2
Fort Frances								2			
Goderich				1							
Guelph									2		
Gore Bay				2							
Hamilton				15	8			1			9
Kingston			1		1						
Kitchener			1								
Kenora											
London				1				1			
Lindsay											
L'Orignal									3		
Milton			1					1			2
Napanee			1		1					1	
North Bay				5			1	1			2
Ottawa			3	2				1	5	3	9
Owen Sound				2							
Orangeville											
Perth								1			
Pictou											
Pembroke				2							
Peterborough			1					3			
Port Arthur				6	5			2			2
Parry Sound				4							3
Simcoe				2							5
St. Catharines	2			2	6						8
Sarnia				2	1			1			1
Stratford				2	1						
Sandwich				1	1						
St. Thomas				2				3			
Sault Ste. Marie				3				1			
Sudbury				7				3			
Toronto	2			24	16	1	1	22			
Walkerton				1							
Woodstock				3				3			9
Welland				1	4		1				3
Whitby			1					1			
Lock-ups :											
Atikokan											
Byng Inlet											1
Cobalt				1	1			7			
Mine Centre											
Totals	5	2	11	95	50	2	3	59	14	14	57

No. 4.

during the year ending 30th September, 1918.

Contempt of Court.	Carrying unlawful weapons.	Counterfeiting and passing counterfeit money.	Cruelty to animals.	Cutting, wounding and attempting same.	Deserting employment	Destroying and injuring property.	Drunk and disorderly.	Deserting the Militia.	Escaping from and obstructing constables	Escaping from prison.	Forgery.	Fraud or obtaining money under false pretences.
1							4	3		1		8
3							2				3	
							17	1			1	2
							8		1			
1			1									2
2	1						5	2	2	1	1	1
	1						1				1	2
2							14			1		1
							3				2	
1							1					
			1				2					
						1	2					
	9			1		5	96		5		3	19
							13	3	3		1	2
1							4					
							1					
					55	5	151			1	3	5
							1					
1								1	1	1		
							6			2	1	
	1						2	1		1	2	3
	1				3	1		1		1	2	
			1	2			137	61		2	3	5
							1					
2							7					
1			1				3	7	1			4
							1					3
					3		17	1	3	4	3	6
	1						27	9	1	1	4	22
1							2			3		
							12	38			3	
							41					
2											1	1
							25					1
							8			1		2
	2				13	2	22	17	1		3	1
1							70	2		13		9
	10		1	9	1		1,439	11	15	16	7	26
						1		31				
4							16	3		1	2	4
							1					
							15					
23	26	1	4	12	75	15	2,177	191	33	49	44	129

TABLE

Showing offences for which prisoners were sentenced

Name of gaol.	Gambling.	Giving liquor to Indians.	Horse, cattle and sheep stealing.	House breaking and robbery.	Incendiarism.	Indecent assault and exposure.	Inmates and frequenters of houses of ill-fame.	Keeping house of ill-fame.	Larceny.	Manslaughter.	Misdemeanour.	Murder.	Perjury.
Barrie		1	1			4		1	19		1		
Belleville				4				1	13				
Brantford			2	2					2				
Brampton									2				
Brockville.....				4					10				1
Bracebridge				15									
Cayuga									4				
Cornwall.....			2						4				
Cobourg									10				
Chatham			1	2		2			17				
Fort Frances	1	1				2							
Goderich									10	1	3		
Guelph			2			2			5		1		
Gore Bay.....			1						1				
Hamilton			4	18		5	1	3	85				
Kingston						1		1					
Kitchener						1		1	11			1	3
Kenora									2				
London.....				2		1	3	4	52				
Lindsay									2				
L'Orignal.....													
Milton									1				
Napanee.....									4				
North Bay.....				1		1	7	2	29				
Ottawa.....			1	2		5	3	7	82				1
Owen Sound				2					12				
Orangeville.....													
Perth													
Picton.....													
Pembroke									10			1	
Peterborough			2			1	3	3	8				
Port Arthur				8		1	1	2	27			1	1
Parry Sound.....				7					18		1	1	
Simcoe				5				1					
St. Catharines.....						1			17				
Sarnia			1	1					8				
Stratford.....						1	2	1	9				
Sandwich						1			51	1			2
St. Thomas							6	4	15				
Sault Ste. Marie ...	1					3	1	1	23				1
Sudbury.....	8					2	11	4					1
Toronto	22			69		22	31	41	488	1	1	2	3
Walkerton.....									7				
Woodstock.....				1									
Welland.....				1					18				
Whitby.....			2										
Lock-ups :													
Atikokan													
Byng Inlet.....									1				
Cobalt.....	9								7				
Mine Centre													
Totals	41	2	19	144		56	69	77	1,084	3	7	6	13

No. 4—Concluded.

during the year ended 30th September, 1918.

Prostitution.	Rape and assault with intent.	Refusing bail.	Receiving stolen goods.	Seduction.	Selling liquor without a license.	Shooting with intent.	Stabbing.	Threatening and seditious language.	Trespass.	Unlawful shooting.	Vagrancy.	Other offences not enumerated.	Totals.
.....	5	1	.....	.....	.....	.....	7	.....	62
1	28	.....	.....	1	1	.....	5	1	67
.....	3	1	.....	.....	.....	.....	1	21	53
.....	5	1	8
.....	10	.....	.....	1	.....	.....	2	2	43
.....	4	2	26
.....	6	1	11
.....	1	.....	2	3	33
.....	18	.....	35
.....	1	.....	.....	1	.....	.....	.....	.....	.....	.....	14	.....	71
.....	11	.....	.....	2	.....	.....	2	61	87
.....	1	.....	.....	.....	.....	.....	13	.....	31
.....	1	.....	5	.....	1	.....	.....	1	.....	.....	3	.....	26
.....	1	.....	1	.....	.....	.....	.....	.....	.....	2	11
.....	1	.....	1	.....	1	.....	.....	.....	3	.....	33	293	619
.....	28	.....	.....	.....	.....	.....	7	15	76
.....	1	1	.....	.....	.....	.....	.....	.....	10	7	42
.....	1	.....	.....	.....	.....	.....	.....	.....	1	5
1	1	.....	.....	2	.....	8	31	327
.....	3
.....	2	2	9	20
.....	4	1	19
.....	4	.....	15
2	1	.....	.....	1	18	.....	.....	1	.....	.....	14	45	142
.....	1	.....	2	3	.....	.....	2	.....	27	89	459
.....	1	.....	6	.....	.....	.....	.....	.....	.....	6	30
.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	1	16
.....	18	9	35
.....
.....	2	.....	.....	.....	.....	.....	4	.....	6	8	50
.....	1	.....	.....	.....	.....	.....	.....	.....	11	6	43
.....	1	20	.....	1	.....	.....	1	22	37	175
1	2	5	1	.....	.....	.....	.....	8	109	225
.....	2	.....	21
.....	23	.....	.....	.....	.....	.....	3	31	146
1	1	.....	.....	.....	3	1	4	5	71
.....	2	.....	6	23	51
3	2	.....	7	.....	12	.....	.....	.....	.....	.....	16	48	176
1	1	.....	.....	.....	2	.....	2	2	49
6	2	.....	.....	1	30	.....	1	1	.....	.....	6	29	171
2	1	.....	.....	1	5	1	1	.....	1	2	21	462	628
.....	2	2	437	2	.....	1	18	.....	124	448	3,315
.....	7	.....	15
.....	18	.....	66
1	1	.....	.....	.....	.....	7	.....	11	111	190
.....	2	.....	.....	.....	.....	.....	5	13	24
.....
.....	1
2	1	.....	.....	1	1	.....	.....	39	84
.....	1
26	10	.....	22	12	652	10	3	9	47	6	493	1,972	7,874

TABLE NO. 5.

Showing the total number of prisoners, male and female, sentenced under each offence, during the year ending 30th September, 1918.

Offences.	Male.	Female.	Total
Abortion.....	3	2	5
Abusive and obscene language	2	.....	2
Arson	10	1	11
Assault	91	4	95
Assault, felonious	49	1	50
Attempted suicide	2	.....	2
Abduction	3	.....	3
Bigamy	49	10	59
Breaches of the peace	11	3	14
Breaches of by-laws	12	2	14
Burglary	57	.....	57
Contempt of court	23	.....	23
Carrying unlawful weapons	26	.....	26
Counterfeiting and passing counterfeit money	1	.....	1
Cruelty to animals.....	4	.....	4
Cutting, wounding and attempting same.....	12	.....	12
Deserting employment	75	.....	75
Destroying and injuring property	15	.....	15
Drunk and disorderly	2,120	57	2,177
Deserting militia	191	.....	191
Escaping from or obstructing constables	31	2	33
Escaping from prison.....	49	.....	49
Forgery	42	2	44
Fraud or obtaining money or goods under false pretences.....	125	4	129
Gambling	41	.....	41
Giving liquor to Indians	2	.....	2
Horse, cattle and sheep stealing.....	19	.....	19
Housebreaking and robbery.....	141	3	144
Incendiarism.....	.....	.....	.....
Indecent assault and exposure.....	56	.....	56
Inmates and frequenters of houses of ill-fame.....	49	20	69
Keepers houses of ill-fame.....	50	27	77
Larceny	1,029	55	1,084
Manslaughter.....	3	.....	3
Misdemeanour.....	7	.....	7
Murder.....	5	1	6
Perjury	11	2	13
Prostitution .....	.....	26	26
Rape and assault with intent	10	.....	10
Refusing bail.....	.....	.....	.....
Receiving stolen property.....	21	1	22
Seduction	12	.....	12
Selling liquor without license.....	642	10	652
Shooting with intent	10	.....	10
Stabbing	3	.....	3
Threatening and seditious language	8	1	9
Trespass	47	.....	47
Unlawful shooting.....	6	.....	6
Vagrancy	380	113	493
Other offences not enumerated.....	1,912	60	1,972
Totals.....	7,467	407	7,874

TABLE No. 6.

Showing the social status and habits of the prisoners committed during the year ending 30th September, 1918.

Name of gaol.	Married.	Un-married.	Temperate	In-temperate.	Total com-mitted to gaol.	Neither read nor write.
Barrie	30	69	70	29	99	14
Belleville.....	94	130	182	42	224	26
Brantford....	66	84	97	53	150	41
Brampton.....	8	26	19	15	34	2
Brockville	34	49	57	26	83	6
Bracebridge.....	20	32	51	1	52	8
Cayuga.....	5	14	10	9	19	2
Cornwall.....	16	30	24	22	46	18
Cobourg.....	17	56	50	23	73	10
Chatham.....	27	137	112	52	164	28
Fort Frances.....	38	104	106	36	142	12
Goderich.....	15	35	39	11	50	1
Guelph.....	16	17	26	7	33	7
Gore Bay.....	8	6	8	6	14	4
Hamilton	393	606	425	574	999	156
Kingston.....	38	73	36	75	111	25
Kitchener.....	37	57	75	19	94	2
Kenora.....	10	18	22	6	28	6
London	186	389	304	271	575	6
Lindsay.....	16	8	23	1	24	3
L'Orignal	16	14	29	1	30	9
Milton.....	13	21	22	12	34	4
Napanee	10	12	19	3	22	5
North Bay	70	126	148	48	196	42
Ottawa	355	588	480	463	943	224
Owen Sound.....	19	23	29	13	42	5
Orangeville	12	18	22	8	30	10
Perth.....	22	28	19	31	50	13
Pictou	8	12	17	3	20	.....
Pembroke	11	45	38	18	56	9
Peterborough.....	40	95	122	13	135	9
Port Arthur.....	77	142	94	125	219	28
Parry Sound	53	301	281	73	354	22
Simcoe.....	12	19	17	14	31	6
St. Catharines.....	49	130	134	45	179	41
Sarnia.....	36	93	48	81	129	22
Stratford	32	62	83	11	94	18
Sandwich.....	119	167	147	139	286	56
St. Thomas.....	44	88	99	33	132	16
Sault Ste. Marie.....	108	157	161	104	265	64
Sudbury	245	533	259	519	778	332
Toronto	2,148	3,397	2,574	2,971	5,545	929
Walkerton	11	28	33	6	39	3
Woodstock	23	83	69	37	106	4
Welland	163	153	172	144	316	112
Whitby	14	25	21	18	39	.....
Lock-ups:						
Atikokan.....	3	.....	3	.....	3	.....
Byng Inlet.....	5	28	33	.....	33	.....
Cobalt.....	57	60	47	70	117	22
Mine Centre.....	1	4	1	4	5	.....
Totals	4,850	8,392	6,957	6,285	13,242	2,382

TABLE

Showing the number of prisoners upon whom sentences were passed, the nature of such Court during the year ending

Name of gaol.	Total number of prisoners sentenced during the year.			Where sentenced to.					
	Male.	Female.	Total.	To gaol and afterwards transferred to the Reformatory.	To Reformatory for Ontario direct.	To gaol and afterwards to Female Reformatory.	To Female Reformatory direct.	To Penitentiary.	Sentenced elsewhere.
Barrie	60	2	62	2	16			1	19
Belleville	64	3	67		10		2	2	
Brantford	52	1	53		6		1	3	
Brampton	6	2	8		1		2		
Brockville	42	1	43		10			6	2
Bracebridge	24	2	26	1	9		1		
Cayuga	11		11		1				
Cornwall	30	3	33		2			2	
Cobourg	35		35	1	6			3	
Chatham	67	4	71		13		2	6	2
Fort Frances	86	1	87		2			1	
Goderich	29	2	31		3			1	
Guelph	26		26	4	4			1	
Gore Bay	11		11		3				
Hamilton	581	38	619	58	76	1	13	23	
Kingston	70	6	76	6		2		4	
Kitchener	36	6	42	2	11		5	2	1
Kenora	5		5		1				
London	307	20	327	11	81		9	45	7
Lindsay	3		3		2				
L'Orignal	19	1	20		1			1	
Milton	18	1	19	2	2			2	4
Napanee	14	1	15		3		1	1	6
North Bay	131	11	142	71	4	6	2	1	
Ottawa	400	59	459	8	13	4	2	13	
Owen Sound	28	2	30		7		1		
Orangeville	13	3	16		1				
Perth	32	3	35		2				
Pictou									
Pembroke	45	5	50		1			2	
Peterborough	35	8	43		13		7	2	
Port Arthur	170	5	175		1			15	98
Parry Sound	223	2	225		116		2	9	
Simcoe	20	1	21	9	4			1	
St. Catharines	142	4	146	19	29	1	1	26	8
Sarnia	69	2	71		12		1	4	2
Stratford	47	4	51	7				1	
Sandwich	166	10	176	1	34		9	2	9
St. Thomas	42	7	49	2	10		5	8	2
Sault Ste. Marie	159	12	171	22			5	8	2
Sudbury	608	20	628		94		15	25	
Toronto	3,183	132	3,315	1,698	90	3	11	53	51
Walkerton	15		15	1	1				
Woodstock	64	2	66	4	2		1	3	
Welland	180	10	190	53		5		11	
Whitby	21	3	24		6		1		2
Lock-ups :									
Atikokan									
Byng Inlet	1		1						1
Cobalt	77	7	84		6		2		4
Mine Centre	1		1						1
Totals	7,468	406	7,874	1,982	709	22	101	290	221

No 7.

sentences, and the disposal of those who elected to be tried at the County Judge's Criminal September 30th, 1918.

Died while under going sentence.	To gaol and there detained until expiration of sentence or payment of fine.	Capital and corporal sentences.			County Judge's criminal court.		
		Number of prisoners sentenced to death and executed.	Number of prisoners sentenced to death and commuted to imprisonment.	Number of prisoners sentenced to corporal punishment with imprisonment.	Acquitted on trial and discharged from custody.	Found guilty and sentenced.	Total number who elected to be tried.
.....	24	.....	.....	.....	4	15	19
.....	53	.....	.....	.....	14	7	21
.....	41	.....	.....	.....	7	9	16
1	4	.....	.....	.....	5	10	15
.....	25	.....	.....	.....	14	15	29
.....	15	.....	.....	.....	2	9	11
.....	10	.....	.....	.....	2	5	7
.....	29	.....	.....	.....	1	3	4
.....	25	.....	.....	.....	2	6	8
.....	48	.....	.....	.....	4	7	11
.....	84	.....	.....	.....	4	.....	4
.....	27	.....	.....	.....	1	13	14
.....	17	.....	.....	.....	1	2	3
.....	8	.....	.....	.....	.....	.....	.....
.....	448	.....	.....	2	11	100	111
.....	64	.....	.....	.....	3	1	4
.....	21	.....	.....	.....	2	4	6
.....	4	.....	.....	.....	.....	1	1
.....	174	.....	.....	.....	1	10	11
.....	1	.....	.....	.....	1	.....	1
.....	18	.....	.....	.....	.....	9	9
.....	9	.....	.....	.....	3	16	19
.....	4	.....	.....	.....	.....	2	2
1	57	.....	.....	.....	21	14	35
.....	419	.....	.....	.....	8	7	15
.....	22	.....	.....	.....	.....	4	4
.....	15	.....	.....	.....	.....	1	1
3	30	.....	.....	.....	6	2	8
.....
.....	47	.....	.....	1	1	1	2
.....	21	.....	.....	.....	.....	1	1
.....	61	.....	.....	.....	2	11	13
1	97	.....	1	.....	.....	3	3
.....	7	.....	.....	.....	.....	7	7
.....	62	.....	.....	.....	2	8	10
.....	52	.....	1	.....	.....	12	12
.....	43	.....	.....	.....	3	7	10
.....	121	.....	.....	.....	14	5	19
.....	22	.....	.....	.....	5	12	17
.....	134	.....	.....	.....	1	8	9
.....	494	.....	.....	.....	.....	.....	.....
.....	1,409	.....	.....	2	70	171	241
.....	13	.....	.....	.....	1	5	6
1	55	.....	.....	.....	.....	.....	.....
.....	121	.....	.....	.....	6	8	14
.....	15	.....	.....	.....	11	26	37
.....
.....
.....	72	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	4	1	5
7	4,542	.....	2	5	237	558	795

TABLE

Showing the number of prisoners, how maintained, cost of maintenance, and

Name of gaol.	Name of gaoler.	How Maintained.				
		Total number of prisoners committed during the year.	Number of prisoners whose maintenance was defrayed by the Province.	Number of prisoners whose maintenance was defrayed by the municipalities.	Number of days' custody of Government prisoners.	Number of days' custody of municipal prisoners.
Barrie	H. E. Stoddart	99	35	64	1,757	1,742
Belleville	T. Ketcheson	224	190	34	3,585	544
Brantford	Chas. Jones	150	67	83	1,560	2,005
Brampton	Jas. McClure	34	26	8	526	620
Brockville	W. R. Scace	83	51	32	918	558
Bracebridge	D. McDonald	52	52	.....	2,340	.....
Cayuga	Thos. Walsh	19	13	6	304	453
Cornwall	T. W. Ault	46	25	21	784	277
Cobourg	G. L. McLaughlin	73	29	44	702	2,031
Chatham	T. Storing (acting)	164	52	112	2,097	2,952
Fort Frances	R. Bolton	142	142	.....	1,610	.....
Goderich	J. C. Griffin	50	17	33	585	971
Guelph	Jno. McNab	33	21	12	500	276
Gore Bay	S. Cronkhite	14	14	.....	706	.....
Hamilton	Jas. Ogilvie	999	266	733	7,425	9,697
Kingston	C. W. Topping	111	27	84	1,410	4,186
Kitchener	J. Cook	94	47	47	1,834	1,234
Kenora	L. Myles	28	28	.....	406	.....
London	Jas. Carter	575	152	423	1,830	9,192
Lindsay	G. A. Balfour	24	6	18	582	257
L'Orignal	F. Millette	30	21	9	578	240
Milton	A. McGibbon	34	23	11	897	475
Napanee	W. E. Loyst	22	12	10	317	292
North Bay	W. J. Bailey	196	186	10	7,964	67
Ottawa	A. G. Dawson	943	285	658	7,352	9,848
Owen Sound	W. A. Grier	42	22	20	890	1,512
Orangeville	Chas. Bowles	30	14	16	98	3,487
Perth	John Oates	50	18	32	923	3,512
Picton	A. Huyck	20	13	7	40	35
Pembroke	Wm. Brown	56	26	30	789	1,246
Peterborough	H. Nesbitt	135	27	108	698	2,839
Port Arthur	Thos. Penfold	219	219	.....	7,228	.....
Parry Sound	J. A. Johnston	354	354	.....	3,483	.....
Simcoe	O. Robertson	31	22	9	831	70
St. Catharines	Geo. Bush	179	143	36	4,574	410
Sarnia	J. N. Dodd	129	19	110	409	2,550
Stratford	H. Nichol	94	67	27	2,101	545
Sandwich	W. A. Wanless	286	134	152	4,684	3,969
St. Thomas	W. F. Luton	132	64	68	1,180	964
Sault Ste. Marie	R. M. Hearst (acting)	265	265	.....	7,763	.....
Sudbury	T. O'Neill (acting)	778	266	512	4,418	6,069
Toronto	H. Addy (acting)	5,545	1,166	4,379	14,927	20,480
Walkerton	D. McKechnie	39	13	26	472	542
Woodstock	Sherriff (acting)	106	37	69	887	1,989
Welland	J. Kottmuir	316	235	81	4,037	971
Whitby	J. E. Schiller	39	32	7	1,812	526
Lock-ups:						
Atikokan	J. L. McGregor	3	1	2	.....	.....
Byng Inlet	B. Moore	33	13	20	.....	.....
Cobalt	A. T. Rowell	117	117	.....	.....	.....
Mine Centre	J. R. Gilbert	5	5	.....	.....	.....
Totals .....	.....	13,242	5,079	8,163	110,813	99,633

No. 8.

salaries of various gaol officials for the year ended 30th September, 1918.

Expenditure.					Salaries.				
Cost of fuel, food and clothing.	Cost of official salaries.	Cost of repairs.	Total gaol expenditure for the year.	Average cost per prisoner for entire gaol expenditure.	Gaolers.	Turnkeys.	Matrons.	Gaol surgeons.	
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	
1,808 79	2,348 00	88 78	4,245 57	42 87	850 00	898 00	350 00	250 00	
1,850 00	1,850 00	50 00	3,750 00	16 74	700 00	550 00	300 00	300 00	
1,500 32	2,250 00	677 44	4,427 76	28 18	900 00	800 00	250 00	300 00	
1,356 08	1,400 00	90 62	2,846 70	83 73	550 00	500 00	250 00	100 00	
1,828 25	2,050 00	134 33	4,012 58	48 34	1,050 00	650 00	200 00	150 00	
685 00	750 00	40 00	1,475 00	28 36	500 00	.....	100 00	150 00
781 50	744 00	75 90	1,601 40	84 28	600 00	.....	4 00	140 00
1,634 04	2,000 00	25 00	3,659 04	79 54	1,200 00	450 00	250 00	100 00	
1,867 45	2,050 00	806 78	4,724 23	64 71	1,000 00	650 00	200 00	200 00	
1,867 48	2,648 33	.....	4,515 81	27 53	900 00	1,248 33	300 00	200 00
940 22	1,500 66	78 75	2,519 63	17 74	900 00	309 00	241 66	50 00	
1,406 94	1,720 00	.....	3,126 94	62 54	750 00	650 00	200 00	120 00
993 66	1,931 25	.....	2,924 91	88 63	800 00	731 25	300 00	100 00
397 10	600 00	6 89	1,003 99	71 71	450 00	.....	150 00	.....
5,469 23	5,647 44	348 09	11,464 76	11 48	1,221 99	3,912 96	362 49	150 00	
2,826 24	3,329 88	331 34	6,487 46	58 44	1,056 63	1,573 25	300 00	400 00	
1,598 39	2,095 00	75 00	3,768 39	40 09	950 00	810 00	200 00	135 00	
674 98	1,356 86	.....	2,031 84	72 56	600 00	364 00	192 86	200 00
3,320 00	5,280 00	354 00	8,954 00	15 57	1,000 00	3,090 00	840 00	350 00	
703 60	1,850 00	32 40	2,586 00	107 75	800 00	750 00	200 00	100 00	
376 00	1,281 25	.....	1,657 25	55 24	600 00	456 25	150 00	75 00
465 58	1,450 00	101 54	2,017 12	59 33	700 00	500 00	200 00	50 00	
396 32	1,025 00	15 00	1,436 32	65 29	750 00	.....	200 00	75 00
2,615 87	3,385 00	808 57	6,809 44	34 74	900 00	2,115 00	220 00	150 00	
5,895 31	6,620 05	368 35	12,883 71	13 66	1,600 00	4,170 05	550 00	300 00	
2,047 00	2,100 00	25 00	4,172 00	99 33	800 00	750 00	300 00	250 00	
2,805 17	1,500 00	12 60	4,317 77	143 92	700 00	500 00	200 00	100 00	
829 08	2,214 00	123 49	3,166 57	63 33	1,000 00	800 00	314 00	100 00	
149 16	975 00	.....	1,124 16	56 21	700 00	.....	200 00	75 00
757 45	2,255 00	.....	3,012 45	53 79	1,200 00	730 00	225 00	100 00
673 73	1,750 00	.....	2,423 73	17 95	750 00	700 00	150 00	150 00
4,404 94	3,940 00	116 03	8,460 97	38 63	900 00	2,540 00	300 00	200 00	
1,171 50	1,550 00	12 50	2,734 00	7 72	600 00	700 00	100 00	150 00	
593 49	1,715 00	131 85	2,440 34	78 72	840 00	600 00	200 00	75 00	
1,035 00	2,170 00	100 00	3,305 00	18 46	1,000 00	720 00	300 00	150 00	
599 54	1,978 64	131 12	2,709 30	16 35	725 00	753 64	300 00	200 00	
979 12	1,887 03	138 54	3,004 69	31 96	800 00	637 50	299 53	150 00	
4,130 32	2,921 00	129 13	7,180 45	25 11	800 00	1,650 00	271 00	200 00	
505 27	2,371 50	16 72	2,893 49	21 92	900 00	1,021 50	300 00	150 00	
4,241 85	3,117 50	388 68	7,748 03	29 24	840 00	1,777 50	200 00	300 00	
2,411 25	3,195 25	.....	5,606 50	7 20	912 50	2,032 75	250 00	.....
14,358 56	16,215 73	326 05	30,900 34	5 57	1,095 96	12,594 81	1,524 96	1,000 00	
825 00	1,500 00	250 00	2,575 00	66 02	700 00	450 00	250 00	100 00	
1,992 38	2,494 84	529 38	5,016 60	47 32	900 00	1,244 84	250 00	100 00	
1,803 77	2,985 00	77 45	4,866 22	15 40	960 00	1,555 00	270 00	200 00	
1,489 57	1,850 00	59 11	3,398 68	87 14	800 00	700 00	200 00	150 00	
.....	150 00	.....	150 00	50 00	150 00	.....	.....	.....
3 75	300 00	.....	303 75	9 20	300 00	.....	.....	.....
.....	
.....	300 00	.....	300 00	60 00	300 00	.....	.....	.....
91,065 25	118,598 21	7,076 43	216,739 89	16 36	40,002 08	57,635 63	12,915 50	8,045 00	

TABLE No 9.

Showing the number of escapes and deaths, the Revenue derived from prison labour, the cost of diet, the accommodation of the various gaols and the highest and lowest number of prisoners in custody during the year ending September 30th, 1918.

Name of gaol.	Prisoners who escaped and evaded re-capture.	Prisoners who escaped and were recaptured.	Prisoners who died.	Number of cells in each gaol.	Greatest number of prisoners confined in gaol at any time during the year.	Lowest number of prisoners confined in gaol at any time during the year.	Actual cash revenue derived from prison labour.	Cost of daily rations for prisoners.
							\$ c.	Cents.
Barrie.....		2		23	23	2		18.00
Belleville.....		1		38	24	3		18.71
Brantford.....				24	17	5		13.50
Brampton.....		1		25	8	2		17.50
Brockville.....				33	10	1		20.47
Bracebridge.....				15	12	1		17.50
Cayuga.....				14	5	1		17.00
Cornwall.....				17	9	1		22.50
Cobourg.....		1		24	15	2		17.00
Chatham.....				38	26	7		18.75
Fort Frances.....				10	15	2		19.80
Goderich.....				12	12	1		26.25
Guelph.....				18	8			15.50
Gore Bay.....				12	5	1		40.00
Hamilton.....		1		60	64	31		19.19
Kingston.....			1	49	20	10	3,165 00	19.54
Kitchener.....				20	21	2		17.92
Kenora.....				14	5			26.56
London.....	1	2		57	40	15		13.00
Lindsay.....				24	4			19.30
L'Orignal.....				18	13	1		18.00
Milton.....		2		18	9	1		21.56
Napanee.....				18	5			17.11
North Bay.....			1	20	36	8		22.75
Ottawa.....	1	3		93	66	25	1,498 65	17.70
Owen Sound.....				32	11	3		23.41
Orangeville.....				22	14	8		31.00
Perth.....				18	18	4		14.16
Picton.....				18	1			20.00
Pembroke.....				24	12	1		15.50
Peterborough.....				18	16	5		15.66
Port Arthur.....				40	36	9		22.00
Parry Sound.....		5	1	26	42	2		19.34
Simcoe.....		3		18	6			20.00
St. Catharines.....				38	49	4		19.00
Sarnia.....		1		13	24	1		18.60
Stratford.....				30	17	1		17.47
Sandwich.....				58	34	17		20.25
St. Thomas.....				16	16	3		15.00
Sault Ste. Marie.....				23	32	12		20.60
Sudbury.....				22	72	16		20.02
Toronto.....	3		1	270	129	56		18.10
Walkerton.....				24	7	1		12.50
Woodstock.....				32	15	2		13.25
Welland.....				48	29	1		18.20
Whitby.....				28	13	2		23.90
Lock-ups :								
Atikokan.....				3				
Byng Inlet.....				7	20	1		40.00
Cobalt.....				6				
Mine Centre.....				3				
Totals....	5	22	4	1,531			4,663 65	

TABLE No. 10.

Showing the daily cost per prisoner in each of the gaols, excluding the District Lock-ups, for the year ending September 30th, 1918.

Name of gaol.	Number of prisoners committed during the year.	Total days' stay of prisoners during the year.	Cost of fuel, food and clothing.	Average cost per day for each prisoner.
			\$ c.	Cents.
Barrie	99	3,499	1,808 79	51.07
Belleville	224	4,129	1,850 00	44.80
Brantford	150	3,565	1,500 32	42.08
Brampton	34	1,146	1,356 08	118.32
Brockville	83	1,476	1,828 25	123.88
Bracebridge	52	2,340	685 00	29.27
Cayuga	19	757	781 50	103.23
Cornwall	46	1,061	1,634 04	154.00
Cobourg	73	2,733	1,867 45	68.32
Chatham	164	5,049	1,867 48	36.98
Fort Frances	142	1,610	940 22	58.39
Goderich	50	1,556	1,406 94	91.06
Guelph	33	776	993 66	128.17
Gore Bay	14	706	397 10	56.23
Hamilton	999	17,122	5,469 23	31.94
Kingston	111	5,596	2,826 24	50.50
Kitchener	94	3,068	1,598 39	52.09
Kenora	28	406	674 98	166.25
London	575	11,022	3,320 00	30.12
Lindsay	24	839	703 60	83.78
L'Orignal	30	818	376 00	45.96
Milton	34	1,372	465 58	33.92
Napanee	22	609	396 32	65.07
North Bay	196	8,031	2,615 87	32.57
Ottawa	943	17,200	5,895 31	34.31
Owen Sound	42	2,402	2,047 00	85.22
Orangeville	30	3,585	2,805 17	78.25
Perth	50	4,435	829 08	18.71
Picton	20	75	149 16	198.88
Pembroke	56	2,035	757 45	37.22
Peterborough	135	3,537	673 73	19.04
Port Arthur	219	7,228	4,404 94	60.94
Parry Sound	354	3,483	1,171 50	33.63
Simcoe	31	901	593 49	65.87
St. Catharines	179	4,984	1,035 00	20.76
Sarnia	129	2,959	599 54	20.26
Stratford	94	2,646	979 12	35.11
Sandwich	286	8,653	4,130 32	47.73
St. Thomas	132	2,144	505 27	23.56
Sault Ste. Marie	265	7,763	4,241 85	54.62
Sudbury	778	10,487	2,411 25	22.99
Toronto	5,545	35,407	14,358 56	45.53
Walkerton	39	1,014	825 00	81.36
Woodstock	106	2,876	1,992 38	69.62
Welland	316	5,008	1,803 77	36.01
Whitby	39	2,338	1,489 57	63.84
Totals	13,084	210,446	91,061 50	43.27

TABLE No. 11.

Showing the number of prisoners, male and female, sentenced during the year ending September 30th, 1918, and a comparison of the same with the previous year.

Name of gaol.	No. of Prisoners sentenced during year ending 30th September, 1917.			No. of Prisoners sentenced during year ending 30th September, 1918.			Increase.			Decrease.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
Barrie	126	2	128	60	2	62	.....	.....	.....	66	.....	66
Belleville.....	98	1	99	64	3	67	.....	2	2	34	.....	34
Brantford.....	49	1	50	52	1	53	3	.....	3	.....	.....	.....
Brampton.....	10	.....	10	6	2	8	.....	2	2	4	.....	4
Brockville	34	4	38	42	1	43	8	.....	8	.....	3	3
Bracebridge	3	1	4	24	2	26	21	1	22	.....	.....	.....
Cayuga	18	1	19	11	.....	11	.....	.....	.....	7	1	8
Cornwall	22	2	24	30	3	33	8	1	9	.....	.....	.....
Cobourg	52	.....	52	35	.....	35	.....	.....	.....	17	.....	17
Chatham	61	8	69	67	4	71	6	.....	6	.....	4	4
Fort Frances.....	56	1	57	86	1	87	30	.....	30	.....	.....	.....
Goderich	21	1	22	29	2	31	8	1	9	.....	.....	.....
Guelph	37	2	39	26	.....	26	.....	.....	.....	11	2	13
Gore Bay	5	1	6	11	.....	11	6	.....	6	1	.....	1
Hamilton	503	30	533	581	38	619	78	8	86	.....	.....	.....
Kingston	69	5	74	70	6	76	1	1	2	.....	.....	.....
Kitchener.....	47	3	50	36	6	42	.....	3	3	11	.....	11
Kenora	11	3	14	5	.....	5	.....	.....	.....	6	3	9
London.....	246	30	276	307	20	327	61	.....	61	.....	10	10
Lindsay.....	10	.....	10	3	.....	3	.....	.....	.....	7	.....	7
L'Orignal	15	1	16	19	1	20	4	.....	4	.....	.....	.....
Milton	15	.....	15	18	1	19	3	1	4	.....	.....	.....
Napanee.....	13	.....	13	14	1	15	1	1	2	.....	.....	.....
North Bay.....	146	7	153	131	11	142	.....	4	4	15	.....	15
Ottawa.....	512	69	581	400	59	459	.....	.....	.....	112	10	122
Owen Sound	39	2	41	28	2	30	.....	.....	.....	11	.....	11
Orangeville	21	6	27	13	3	16	.....	.....	.....	8	3	11
Perth	34	.....	34	32	3	35	.....	3	3	2	.....	2
Picton .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pembroke	78	3	81	45	5	50	.....	2	2	33	.....	33
Peterborough.....	47	8	55	35	8	43	.....	.....	.....	12	.....	12
Port Arthur.....	133	14	147	170	5	175	37	.....	37	.....	9	9
Parry Sound.....	152	.....	152	223	2	225	71	2	73	.....	.....	.....
Simcoe	15	1	16	20	1	21	5	.....	5	.....	.....	.....
St. Catharines.....	92	11	103	142	4	146	50	.....	50	7	.....	7
Sarnia.....	130	5	135	69	2	71	.....	.....	.....	61	3	64
Stratford	27	2	29	47	4	51	20	2	22	.....	.....	.....
Sandwich.....	193	21	214	166	10	176	.....	.....	.....	27	11	38
St. Thomas.....	32	6	38	42	7	49	10	1	11	.....	.....	.....
Sault Ste. Marie.....	193	22	215	159	12	171	.....	.....	.....	34	10	44
Sudbury.....	639	24	663	608	20	628	.....	.....	.....	31	4	35
Toronto.....	2,996	117	3,113	3,183	132	3,315	187	15	202	.....	.....	.....
Walkerton	23	.....	23	15	.....	15	.....	.....	.....	8	.....	8
Woodstock	69	2	71	64	2	66	.....	.....	.....	5	.....	5
Welland.....	207	3	210	180	10	190	.....	7	7	27	.....	27
Whitby.....	35	1	36	21	3	24	.....	2	2	14	.....	14
Lock-ups:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atikokan.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Byng Inlet .....	.....	.....	.....	1	.....	1	1	.....	1	.....	.....	.....
Cobalt	103	9	112	77	7	84	.....	.....	.....	26	2	28
Mine Centre.....	.....	.....	.....	1	.....	1	1	.....	1	.....	.....	.....
Totals	7,437	430	7,867	7,468	406	7,874	620	59	679	597	75	672

Fifty-first Annual Report

OF THE

INSPECTOR OF

Prisons and Reformatories

OF THE

PROVINCE OF ONTARIO

BEING FOR TWELVE MONTHS ENDING 31st OCTOBER

1918

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed and Published by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

PARLIAMENT BUILDINGS, TORONTO, January 26th, 1919.

To His Honour SIR JOHN STRATHEARN HENDRIE, K.C.M.G., C.V.O., a Colonel
in the Militia of Canada; etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I beg to submit herewith the Fifty-first Annual Report upon the Prisons and Reformatories being for the year ending 30th September, 1918.

I have the honour to be,

Your Honour's most obedient servant,

W. D. MCPHERSON,

Provincial Secretary.

TORONTO, November 14th, 1918.

SIR,—I have the honour to submit herewith, to be presented to His Honour the Lieutenant-Governor, the Fifty-first Annual Report upon the Common Gaols of the Province of Ontario, being for the official year ending 30th September, 1918.

I have the honour to be, Sir,

Your obedient servant,

W. W. DUNLOP,

Inspector.

THE HONOURABLE W. D. MCPHERSON, M.P.P.,

*Secretary of the Province of Ontario,
Toronto.*

INDUSTRIAL FARM, BURWASH.

October 31st, 1918.

To the Inspector of Prisons and Public Charities, Toronto.

SIR,—The changes made in prison methods in this Province have already been referred to in previous reports. It is sufficient to state here that the history of the Burwash Industrial Farm for the past year confirms our expectations. The central idea in these changes is that it is a paying investment to trust the people whether they are prisoners or free citizens. At Burwash Farm we impress upon our men the simple fact that irrespective of their past history they will now be placed on their honour and given a chance to make good. It is very satisfactory to be able to report that 70 per cent. of them have fulfilled this expectation, and by placing the remaining 30 per cent. at healthy, outdoor work under surveillance which is not suggestive of any mistrust, we believe that the best results have been and will be obtained.

In making this statement it must be remembered that the Burwash Farm is far removed from the cities and towns of the Province from which about 75 per cent. of our prisoners come and that the complete change in surroundings from the artificial distractions of the city to the natural atmosphere of the forest and land is in itself a reformatory influence. The men improve in every way. They have the best of fresh air. They have good, plain, nourishing food which makes them physically stronger and with this as a basis they develop confidence in themselves and in those who are looking after them.

We found this to be especially true during the prevalence of the Spanish Influenza. The healthy locality of the institution saved our men from its worst effects and the feeling that they were so fortunately situated in this respect begat a spirit of loyalty that was remarkable.

Prisoners who were addicted to vice or to the use of drugs forget all about such things because there is no temptation to the one or craving for the other.

RECREATIONS.

“All work and no play makes Jack a dull boy” is as true a maxim in a penal institution as in the industrial world. We vary our daily programme with moving pictures, baseball and other games on the recreation grounds and twice during the season our men carried off the honours at baseball in competition with the Sudbury team. With the completion of the auditorium at Camp No. 2 we hope to have facilities for better classification and an opportunity for reading and recreation.

CONSTRUCTION WORK.

During the year an electric lighting system, chemical closets and a better heating system were installed at the Main Camp. Most of this work was done by our own labour under the supervision of the Public Works Department. Our saw mill is a very valuable asset. We have the timber and the means to convert it into lumber for building purposes. The value of the lumber cut at the rate of \$50 per M. was \$15,000.00.

Our road system was extended by two miles, connecting the Main Camp with the gravel pit, farm lands with the Wahnāpitae River, besides better roads near

the C.P.R. Station. Between the C.P.R. and the C.N.R. Stations is about seven miles. This road should be widened, graded and covered with crushed stone.

I would especially call attention to the number of days' work done, amounting to 103,831. About 55 per cent. of this was on capital or construction work, and when Sundays, holidays and sickness is deducted, it left but 24 per cent. for maintenance. Our total maintenance bill for the year is \$157,892.13, which is about \$1.52 per capita per diem. This includes farm expenses, implements, food, transportation, salaries, etc.

From this work we sent to the Provincial Treasurer \$10,204.02.

The separate reports of the several branches of the institution speak for themselves and it is not necessary to make any extended reference to them here.

Our thanks are due to the prisoners, the officers and to all others including yourself for the assistance and encouragement given to our work which is still in its experimental stage.

I have the honour to be, Sir,

Your obedient servant,

C. F. NEELANDS,

Superintendent.

TORONTO MUNICIPAL FARM, LANGSTAFF, ONT.

LANGSTAFF, ONT., November 12th, 1918.

W. W. DUNLOP, ESQ.,

Inspector of Prisons,

Parliament Buildings, Toronto, Ont.

SIR,—In presenting my second annual report of the Toronto Municipal Farms I am still handicapped from the incompleteness of the records prior to July, 1917, the data relative to the population of the farms previous to that time being non-existent.

From the 1st October, 1917, to September 30th, 1918, we have had the best year in the history of the institution, there being no successful attempts to escape from the Men's Department and a minimum of escape from the Women's Department.

Health of Inmates.—No serious trouble or sickness of an epidemic nature prevailed, and in this connection I have to thank Dr. C. P. Johns, Surgeon of the Men's Farm, and Dr. Lillian C. Langstaff, Surgeon of the Women's Farm for their close attention to the work of this branch of the institution.

The greatest population was 220 during May, June, July and August, while on October 1st it dropped to 110, since then it has gradually risen and on December 31st, it reached 180.

Farm Operations.—During the beginning of the farm work in May, the Farm Foreman, Mr. Garnet C. Ellis, was taken ill and resigned his position, but

notwithstanding this handicap the work was carried on efficiently by Guard E. P. Quantz, acting farm foreman. The farm crops were the best in the history of the institution, the average value per acre being \$51.19, an increase over the previous year of \$18.15 per acre. The summary of returns shows a notable increase, being valued at \$53,990.25.

Under-draining.—With the co-operation of the Guelph Agricultural College, Mr. Heimple of the O.A.C. staff spent several months in surveying, etc., and has laid out a complete drainage survey for the men's farm which is a credit to the Ontario Agricultural College. We have finished the first of thirteen systems involved in the complete drainage plan and are endeavouring to complete three more this year.

Piggery.—About May 1st, 1918, changes were made in the hog raising industry on the farm. We were enabled to purchase 40 brood sows, and a supply of garbage from the City of Toronto for feeding purposes was daily obtained. The Dominion Veterinary services provided an efficient staff for the double inoculation of all hogs against cholera. In the seven months since that time the industry has made wonderful progress; the brood sows averaging litters of 8.2, no disease of any kind developed and we estimate our gains at 1 lb. of pork for 20 lbs. of garbage provided for feeding.

Live Stock.—By a careful weeding out of poor cattle from the herd which have been replaced by a better grade, purchased at beef prices, the herd has shown an improvement of about 60 per cent. during this period, while 52 calves were raised.

Horses.—We disposed of ten horses which had been accumulated by gifts and otherwise from various City Departments as they became aged and useless. These animals have been replaced by the purchase of ten first class Clyde geldings and mares, all under five years of age and in perfect condition. We were able in consequence, to turn over more furrows this fall in preparation for the 1919 crops than ever before in the history of the farm.

New Industries.—We were enabled at the beginning of the year, by the appointment of a baker to the staff, to start a new industry, i.e., baking. During the period under report we have supplied the Toronto Jail and the three Belmont Homes of Toronto with bread baked at the Toronto Municipal Farm. A profit on the above was realized and an industry established which has enabled us to train many unskilled inmates who are now drawing skilled pay at this trade.

Inmates Working Out.—The supervision of inmates employed off the farm has been undertaken efficiently by the Salvation Army through Brigadier W. H. Frazer and staff. During this period 141 inmates were employed and earned \$5,980.05, which was expended on the dependents and prisoners by the Salvation Army. We expect in the next year to extend the system materially, as it proves very beneficial to those concerned.

Loss of Population.—We have had in this period two deaths among inmates both from natural causes.

Steward's Department.—Many economies have been worked out and we have been enabled to reduce the maintenance cost per diem from the last year when it stood at 96c. to the present cost of 69c. per diem per inmate, which will compare favourably with any other institution under our notice.

Women's Department.—This Department has been efficiently managed during this period and there has been entire accord among the various members of the staff.

I wish to take this opportunity of expressing my thanks to all those, members of the staff and other friends, who have by their efforts and co-operation enabled me to carry on the work of the institution. Among these I would like to mention Brigadier and Mrs. W. H. Frazer, the Rev. Canon Greene, the Rev. W. J. Lawrence, the Rev. Father Kelly, and Mrs. C. S. Land. Kindly accept, Sir, my thanks for your support and co-operation in all matters pertaining to the institution during the year.

I have the honour to be, Sir,

Your obedient servant,

W. J. MORRISON, MAJOR,
Superintendent.

TABLE No. 1.

Showing the number of prisoners in custody at 30th September, 1917, the number received during the year, the number discharged, died, etc., and the number in custody at 30th September, 1918.

	In custody at 30th September, 1917	Committed during year.	Total number in custody.	Discharged on expiration of sentence.	Discharged by ticket-of-leave.	Discharged by Parole Board.	Discharged by payment of fines.	Discharged by remission of sentence.	Discharged by Order-in-Council.	Discharged by Minister of Justice.	Conditional discharges.	Other reasons.	Escaped.	Returned to gaols.	Transferred to penitentiary.	Transferred to hospitals for insane.	Transferred to other provincial institutions.	Released on Writ of Habeas Corpus.	Died while in custody.	Remaining in custody at 30th Sept., 1918.
Ontario Reformatory— Clay Plant, Mimico.....	41	154	195	112	12	3	3	...	10	...	...	10	2	2	...	...	...	...	...	41
Industrial Farm, Burwash	312	744	1,056	498	75	31	6	...	25	...	...	23	35	37	4	...	1	...	9	312
Industrial Farm, Ft. William.....	17	156	173	85	3	...	3	...	...	...	5	...	10	9	2	...	...	...	...	56
Toronto Municipal Farm— Langstaff (males)	120	1,358	1,478	994	45	...	66	...	...	...	...	156	8	13	...	...	...	...	2	194
Toronto Municipal Farm— Langstaff (females).....	53	319	372	258	4	...	62	...	...	...	...	2	...	...	...	...	...	...	...	46
Mercer Reformatory	120	124	244	85	23	18	1	...	...	...	...	6	3	...	...	2	17	...	...	89
Total	663	2,855	3,518	2,032	162	52	141	...	35	...	5	197	58	61	6	2	18	...	11	738

TABLE No. 2.

Showing Social Conditions.

Married	1,109
Single	1,746
	<hr/>
	2,855

TABLE No. 3.

Showing the Educational Status.

Read and write	2,357
Neither read nor write	498
	<hr/>
	2,855

TABLE No. 4.

Showing the Habits of Prisoners.

Temperate	1,711
Intemperate	1,144
	<hr/>
	2,855

TABLE No. 5.

Showing the Religions of Prisoners.

Anglican	580
Methodists	355
Presbyterians	379
Roman Catholics	1,167
Other religions	374
	<hr/>
	2,855

TABLE No. 6.

Showing the Length of the Sentences.

One month	751
Two months	237
Three months	705
Four months	130
Five months	46
Six months	460
Eight months	13
Nine months	55
Ten months	9
One year	189
Fifteen months	41
Two years	131
Indefinite sentences	88
	<hr/>
	2,855

TABLE No. 7.

Showing the Nationalities of the Prisoners.

Canadians	1,500
English	336
Irish	161
Scotch	114
United States	209
Other nationalities	535
	<hr/>
	2,855

TABLE No. 8.

Showing the Crimes for which Prisoners were Committed.

Crimes against the person:		
Assault	69	
Cutting, wounding, stabbing, shooting	11	
		80
Crimes against property:		
Arson and incendiarism	3	
Burglary, house-breaking and larceny	721	
Forgery	14	
Fraud and false pretences	43	
Horse stealing .....	..
Receiving stolen goods	24	
Trespass	8	
Miscellaneous	1	
		814
Crimes against public morals and decency:		
Bigamy	43	
Inmates houses of ill-fame	60	
Keeping houses of ill-fame	89	
Perjury	5	
Seduction	5	
Indecent assault	34	
Miscellaneous	23	
		259
Offences against public order and peace:		
Alien enemies	7	
Escaping and obstructing constable	16	
Carrying unlawful weapons .....	..
Drunk and disorderly	412	
Deserting and absenting from His Majesty's service	287	
Breaches liquor law	515	
Vagrancy	246	
		1,483
Other offences		219
		2,855

TABLE No. 9.

Showing the Occupations of Prisoners when Committed.

Agricultural	133
Commercial	578
Domestic	382
Labourers	1,153
Mechanics	465
Professional	11
No occupation	133
	2,855

Twenty-Sixth Report
of
Superintendent
Neglected and Dependent Children
of Ontario

January 1st, to December 31st, 1918



Printed by Order of the Legislative Assembly

TORONTO:
Printed and Published by A. T. WILGRESS Printer to the King's Most Excellent Majesty
1919

Printed by
THE RYERSON PRESS

TO HIS HONOUR SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., Lieutenant-Governor of the Province
of Ontario.

MAY IT PLEASE YOUR HONOUR:

I beg to submit herewith the Twenty-sixth Annual Report of the Department
of Neglected and Dependent Children of Ontario, being for the year ending 31st
December, 1918.

I have the honour to be,

Your Honour's obedient servant,

W. D. MCPHERSON,
Provincial Secretary.

Parliament Buildings, Toronto,
April 15th, 1919.

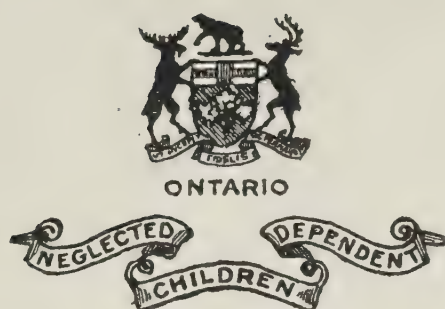
OFFICE OF THE
SUPERINTENDENT OF NEGLECTED AND DEPENDENT CHILDREN OF ONTARIO.

THE HONOURABLE W. D. MCPHERSON, K.C., M.P.P.,
Secretary of the Province of Ontario.

SIR,—I beg to submit herewith the twenty-sixth Annual Report of the work of the Children's Aid Societies of Ontario, as carried on under the Children's Protection Act, being for the year ending 31st December, 1918.

J. J. KELSO.

Parliament Buildings, Toronto,
15th April, 1919.



TWENTY-SIXTH REPORT

Toronto, April 15, 1919.

The work of caring for Neglected and Dependent Children of Ontario made good progress during the year 1918, notwithstanding many difficulties. Extensive educational work, of first importance in the creation of proper conditions, has been carried on and many homes have been saved from breaking up by friendly intervention. A large number of abandoned and unattached children have been taken in charge and this alone means a salvage work of inestimable value to the Province. In the twelve months of 1918 the number of children made wards of the Children's Aid Societies by legal order was 948, of which number 811 were Protestants and 137 Roman Catholics.

HOW DEALT WITH.

Placed in foster homes	487
Placed in Shelter temporarily	157
On probation with parents	152
Transferred to relatives	91
Placed in Alexandra Industrial School	3
" Victoria " 	10
" St. Mary's " 	1
" St. John's " 	1
" Orillia Asylum	1
" Hospitals	5
" Deaf and Dumb Institute	2
In shelters, institutions or colleges, maintained by parents or relatives..	9
Died	29
	<hr/> 948

Sex of children committed: males, 478; females, 470; total, 948.

AGE OF CHILDREN WHEN COMMITTED.

1 year or under	202	10 years or under	46
2 years or under	65	11 " "	44
3 " "	78	12 " "	43
4 " "	57	13 " "	46
5 " "	44	14 " "	47
6 " "	75	15 " "	30
7 " "	44	16 " "	24
8 " "	62		
9 " "	41		
			<hr/> 948

PARENTAGE OF CHILDREN, AS TO NATIONALITY.

	Father.	Mother.	Both.	Families.	Children Committed.
English	26	13	37	78	171
Scotch	7	5	5	17	27
Irish	3	2	1	6	13
French-Canadian	3	1	13	17	37
American	3	6	3	12	25
Italian . . . . .	...	...	4	4	16
Austrian	1	...	4	5	7
German	2	1	1	4	9
Hungarian . . . . .	...	...	1	1	1
Finlander . . . . .	...	...	1	1	5
Belgian . . . . .	...	...	1	1	1
Dutch	1	...	1	2	3
Russian . . . . .	...	...	2	2	4
Indian	1	...	...	1	2
Coloured	1	1	1	3	3

304

Remainder are recorded as Canadians.

PARENTAL RECORD OF LEGITIMATE CHILDREN.

It may be interesting to note the chief reasons for committal:

	Father.	Mother.	Both.	No. of Children Involved.
Deserted	20	8	9	63
Orphaned	10	24	30	132
Immoral . . . . .	...	5	2	22
In asylum	1	2	...	11
Cruelty . . . . .	...	1	...	1
General depravity . . . . .	...	...	3	8
Mother in hospital . . . . .	...	3	...	8

(In addition to the above.)

	Families.	No. of Children Involved.
Stepmother unkind	1	1
Cruelty of stepfather	2	2
Stepfather refuses to provide	1	2
Neglect and illtreatment by father and stepmother	2	2
Mother and stepfather immoral	1	3
Father cannot control—stepmother deserted	1	1
Father enlisted—mother cannot control	9	10
“ “ ill	1	4
“ “ cannot provide	1	3
“ “ dead	2	2
“ “ deserted	4	8
“ “ immoral	37	96
“ “ neglects	3	17
Father imprisoned—mother cannot provide	2	5
“ for immorality against daughter, home unfit	1	1
“ mother immoral	1	1
“ mother dead	1	1
“ home unfit	1	2

	No. of Children	
	Families.	Involved.
Father ill—stepmother cruel	1	6
“ “ mother dead	1	2
“ dead—mother immoral	5	12
“ “ “ incapable of caring for children	4	10
“ “ “ neglects	2	8
“ “ “ deserted	3	5
“ “ “ unable to control	3	5
“ “ “ unable to provide	3	7
“ “ “ unfit	1	1
“ away—mother immoral	1	3
“ deserted—mother in asylum	1	5
“ “ “ dead	12	17
“ “ “ immoral	10	31
“ drinks—mother in asylum	1	1
“ “ —aunt abuses child	1	1
“ neglects—mother deserted	1	1
“ “ “ dead	6	11
“ immoral—mother dead	2	8
“ mentally deficient—mother dead	2	2
“ cannot control—mother dead	1	1
“ does not provide—mother feeble-minded	1	5
Home unfit—parents mentally and physically unable to care for children	1	11
Poverty—father blind	1	4
Father cruel and does not provide	1	5
“ “ and daughter not properly protected	1	1
Relatives ill-treat	1	1
Parents separated	18	31
Poverty—father does not provide	6	27
Neglect	11	29
Extreme neglect	1	3
Foster parents cannot provide	3	3
“ “ “ control	1	1
“ “ unfit	1	1
“ father not a fit guardian	1	1
“ “ cannot control—father and mother dead	1	1
Home influences unwholesome—poor training	5	9
Parents cannot control—theft, etc., etc.	23	35
Grandparents cannot control—father dead, mother working.....	2	2
Abandoned	13	13
Theft, bad companions, truancy, incorrigibility, etc.—no par- ental record given	9	9

Of the children committed, 6 proved to be mentally defective.

SUPERVISION.

In addition to much correspondence and local supervision, personal visits were paid by representatives of the central office to 5,747 Protestant children, while 718 Roman Catholic children were visited and reported upon during the year. In addition there were instances in which two or more visits were paid to the individual child. Each Society is furnished with a report showing the welfare and progress of their wards, and in this way a continuous interest is maintained.

ILLEGITIMATE CHILDREN.

Much attention has been directed during the year to the problem of the illegitimate child and sooner or later adequate legislation will be necessary to meet this need.

The number of children coming under this designation, and made wards of the Children's Aid Societies during 1918 was 214, of which 190 were Protestant and 24 Roman Catholic. There is a slight increase of ten cases over last year. There are many other children of this class which should be looked after.

Mothers of illegitimate children gave their nationality as follows: English, 52; Scotch, 6; Irish, 8; French Canadian, 8; German, 2; American, Australian, Austrian, Serbian, Russian, Italian, Hebrew, Indian, and Coloured, one each; Canadian, 129.

Cases where the fathers were soldiers, 49.

Cases where the mothers were married women, 32; domestics, 62; factory operators, 18; waitresses, 4; clerks, etc., 6; munitions, 6; wards of C.A.S., 4; Barnardo, etc., 5; Feeble-minded, 6.

Nationality of mothers, other than Canadian (nationality was not always given): English, 52; Scotch, 6; Irish, 8; French Canadian, 8; German 2; American, Australian, Austrian, Serbian, Russian, Italian, Hebrew, Indian, and Coloured, one each; making a total of 85.

SUPERVISION.

The supervision of a large and growing family—from ten to twelve thousand individual children—is no light task, and the sense of responsibility has often been well nigh overwhelming. Results fully justify all the effort and trouble involved and each year now sees a small army of young people reaching their majority and going forth to shape their own careers.

CHILDREN'S AID SOCIETY REPORTS

ALGOMA, SAULT STE. MARIE.

The postponed annual general meeting of the Children's Aid Society of Sault Ste. Marie and the District of Algoma was held in the Council Chamber on Monday, January 20th, 1919, the chair being occupied by the President, Mr. T. E. Simpson, M.P. Mr. J. P. Reed acted as secretary.

Inspector Reed's report for the year ending September 30th, 1918, was read and adopted on motion of Mr. T. J. Foster, seconded by Mr. L. A. Hinsperger.

Treasurer Campbell's report was next read and referred to the auditors on motion of Mr. J. J. O'Connor, seconded by Mrs. J. P. Kemp.

President Simpson then addressed the meeting and stated that the work of the Children's Aid Society was one of the most important that was being carried on in this district.

Reviewing the past eight years, during which he had been president, he remarked that in the early years the Society did not even have a shelter, but found some kind-hearted person who was willing to board the children until they could be placed out. This arrangement was not very satisfactory, and so a small building was rented on King Street, but that proved entirely too small. Then the building on Biggings Avenue was purchased, but the lot was not large enough for playgrounds, etc. Then the Society secured the present premises on the Great Northern Road, with ample room for outdoor recreation and the production of vegetables, etc. A building campaign for funds was undertaken and over \$17,000 subscribed in three days, the most of which has been paid, and the building was enlarged and remodelled until now the plant is well worth \$25,000 and admirably suited for the work of child-saving.

Mr. Simpson believed that the Provincial Government should make adequate provision for worthy mothers, who were widows or had been deserted by their husbands, so that their children would have a proper bringing up and have the same chance as their neighbors.

In closing he thanked the Board for their hearty co-operation and support during his tenure of office and bespoke for his successor the same generous treatment.

The report of the Nominating Committee was received and adopted on motion of Mr. T. J. Foster, seconded by Mr. J. A. Hussey. The report was as follows:—

President—L. A. Hinsperger.

First Vice-President—J. Bassingthwaighte.

Second Vice-President—S. W. Fawcett.

Third Vice-President—Mrs. Thos. Fraser.

Secretary and Inspector—J. P. Reed.

Treasurer—R. G. Campbell.

Honorary Solicitor—W. G. Atkin.

Honorary Physician—A. A. Shepard, M.D.

Honorary Dentist—H. F. Goodfellow, D.D.S.

Male members of the Board—Messrs. E. H. Barnes, J. G. Blain, A. Brouillard, W. A. Campbell, W. S. Climie, W. J. Detweiler, W. H. Ewing, T. J. Foster, W. Grassi, J. A. Hussey, J. Lyons, J. O'Boyle, J. J. O'Connor, D. Robertson, G. W. Rudlen, M. A. Sheridan, T. E. Simpson, M.P., Chief R. C. Vincent, H. Waddle, E. S. Walker, and W. H. Wightman.

President-elect Hinsperger then took the chair and thanked the Society for electing him to such a responsible position and promised to put forth his best endeavors not to disappoint them and appealed for their support and co-operation during the coming year.

Congratulatory remarks were made by Rev. P. Bull, Rev. I. G. Bowles, Rev. H. J. Pritchard, Rev. W. S. G. Bunbury, Mr. J. Bassingthwaighte, and Ald. J. J. O'Connor. It was moved by Rev. W. S. G. Bunbury, and seconded by Rev. H. J. Pritchard, that a hearty vote of thanks be tendered Mr. T. E. Simpson, the retiring president, for the splendid work he has done during all these years.

BRANTFORD AND BRANT COUNTY.

At the annual meeting of the Children's Aid Society, on December 11th, 1918, several speakers were heard and the reports of the officers were read. Mr. C. Cook submitted his twenty-fifth annual report as treasurer of the Society. Sheriff Westbrook, on his renomination to the presidency of the Society, said that he was greatly honored. He stated that he believed that the Children's Aid Society had a good staff and Mr Axford was well liked by the children.

OFFICERS ELECTED.

- Hon. President—Mrs. Peter Wood.
- President—Sheriff Westbrook.
- Vice-Presidents—J. M. Young and Geo. H. Williamson.
- Hon. Solicitors—Harley & Sweet.
- Treasurer—C. Cook.
- Secretary—Miss Sarah Brown.
- Executive—Rev. J. W. Gordon, E. E. C. Kilmer, Rev. C. E. Jeakins, Geo. McDonald.

TREASURER'S REPORT.

The Treasurer submitted the following financial statement:—

Receipts.	
City of Brantford	\$1,200 00
County of Brant	500 00
Township of Brantford	50 00
Township of S. Dumfries	25 00
Township of Burford	35 00
Paris C. A. Society	50 00
Board of children (recovered)	817 78
Subscriptions and fees	775 94
Mite boxes	54 97
Sundries.	6 00
Endowment fund	455 46
	<hr/>
	\$3,970 15
Balance due Treasurer	89 18
	<hr/>
	\$4,059 33

Payments.	
Deficit.	\$131 94
Interest, mortgage and bank	379 40
Secretary.	800 00
Postage, printing, phones, etc.	160 34

Office help and supplies	\$229 77	
Charity and welfare	38 40	
Provincial C.A.S.	5 06	
Fuel and light	54 10	
Transportation and travel expenses	222 12	
Sundries.	13 71	
House accounts—		
Laundry.	\$46 76	
Clothing and maintenance	623 08	
Wages.	624 10	
Provisions.	626 91	
Furniture and repairs :.....	87 05	
Water and garbage	16 59	
		2,024 49
		\$4,059 33
Deficit, November 30th, 1918—		
Due Treasurer	\$89 18	
Accounts unpaid	358 44	
Total	\$447 62	

OTTAWA AND CARLETON COUNTY.

The annual meeting of the Ottawa Children's Aid Society was held at the City Hall. Mr. W. L. Scott presided. A large number of the members of the Society were present, and received the reports of the various departments in connection with the great work which the Society is doing, which were of a very satisfactory nature.

In his address, Mr. Scott pointed out the necessity for a larger attendance and urged every member to redouble his or her efforts, as it as the personal touch in the work which counted.

MR. KEANE'S REPORT.

Mr. John Keane, in his report, stated that during the year fifty-two children had been committed to the care of the Society, and foster homes had been found for forty-two of them, fourteen had been placed with parents, six sent to the Industrial School, and four had married.

The Treasurer's report, presented by Mr. J. W. Nicholson, showed the receipts for the year had been \$2,876.85, of which amount \$1,716.80 subscriptions formed an item.

The Detention Home report showed 137 cases had been dealt with, ninety of them being boys. The grades of offences were not very serious, the largest being theft, where there were sixty-three cases, mostly of a trivial nature.

The directorate of the Society for 1918-1919 will be:—

- President—W. L. Scott.
- Vice-Presidents—Sir Louis Davies, K.C.M.G.; John Gorman; Col. Irwin, C.M.G.; Rev. Father Lapointe; Mrs. L. N. Rheaume; Mrs. C. H. Thorburn.
- Secretary—J. Keane.
- Treasurer—J. W. Nicholson.
- Visitor—J. Reymond.

ORANGEVILLE—DUFFERIN COUNTY.

Hon. President—L. C. A. Strother.

President—H. F. Tuck.

First Vice-President—T. Henderson.

Second Vice-President—Mrs. W. H. Bull.

Treasurer—J. S. Little.

Secretary—Miss S. Hughson.

Agent—H. F. Tuck.

Report of the Secretary for year ending November 1st, 1918, showed that eleven meetings of the Society were held during the year, and two deputations attended the meeting of the County Council to place before them the great need of assisting the C.A.S. in their work amongst the neglected children of the county.

Treasurer's reports were read.

The Society has made much progress during the year, and there is \$304.24 in the bank to the credit of the Society, all expenses for the year being paid.

WINDSOR—ESSEX COUNTY.

The annual meeting of the Society was held at Windsor on Tuesday, the 18th February, the President, Mr. Arch. McNee, in the chair. The first business of the meeting was the election of officers for the ensuing year, when the outgoing officers were elected by acclamation.

President—Archy McNee.

Secretary—F. M. Allworth.

Treasurer—W. C. Kennedy.

Agent—W. F. Hackney.

Inspector Hackney's reports of the work of the Children's Aid Society, and the Civic Social Service Department were as follows:—

It is once more my privilege to submit to you a record of another year of service performed on behalf of neglected, dependent, and delinquent children, and in doing so it is with much gratitude to all those who have been so faithful in supplying the great needs. To a superficial observer one annual report might appear so much like another, though anyone looking through our reports on individual cases cannot fail to be impressed with the interesting development we have made during the six years of our existence. Passing phases are often matters only of temporary concern, yet, out of these policy has been made permanent.

If there is one thing more than another that impresses the inquirer into the Society's affairs, it is that of the judgment of its founders in the way in which they laid down an unassailable principle and devised an effective scheme of organization to promote its acceptance. That principle stands as unshaken to-day as when it was enunciated over 25 years ago, by Sir John Gibson and Mr. J. J. Kelso (that a child has an equal right to justice and fair treatment with any adult).

The proper protection, care and training of children is a matter of tremendous importance since it involves national characteristics and the shaping and moulding of our work and destiny among the distinctive peoples of the world. As we build now, so shall our future be. At no time in the history of the world has the conservation of child-life been of such importance, and in this day it is no longer necessary to argue the importance of child welfare work; this has long since been conceded. There can be, it seems to me, no more patriotic duty than that of protecting children who constitute one-third of our population.

Now, in relation to our own work here, there has been a marked increase both in the work undertaken and the interest manifested by the people of the whole country. The best welfare of the children has been our sole concern; we have always been ready to receive children from all kinds of homes; we have responded to all calls, whatever their religion or belief, and have constantly endeavored to show them the brightest side of life.

During the year now past, 1,824 children have been assisted by our Society, an increase of 253 as compared with the year previous; this increase is accounted for chiefly by war conditions and increase in population. Of this number, 78 have been cared for at the Shelter for periods of one to three weeks.

The majority of these have been placed in foster homes, amidst pleasant surroundings, and have been regularly visited; I am very pleased to report that only about 5 children have been returned to us for replacement.

During the year we received 388 complaints, all of which were investigated, the matter of which is both difficult and delicate and which must be undertaken with patience, tact and diplomacy.

We have in our own midst a very large number of mentally deficient children, and it will be easily seen the difficulty we have in placing such children in foster homes. We have at the present time five such children who will be a perpetual cost until the Government provides more adequate accommodation for them.

When faced with such facts as the above, are we not compelled to admit that feeble-mindedness is a problem of such acuteness and importance that its solution must be sought and that immediately.

I feel that I must bring to your notice the great need of a juvenile court and proper detention rooms for boys and girls where a proper system of medical inspection could be made of such cases in the court. I know you all appreciate the need of this if the necessary funds were forthcoming. The following is a detailed account of our work here:—

Applications for children.....	25	Children dealt with in the city...	1,399
Children brought to shelter.....	78	Children dealt with in the county.	425
Children placed on parole.....	81		
Children returned to parents.....	36	<i>Classification of complaints—</i>	
Children involved in complaints..	1,824	Windsor	184
Children made wards.....	32	Walkerville	22
Children sent to industrial schools	14	Ford City	46
Complaints received	398	Amherstburg	38
Complaints investigated	398	Leamington	18
Mail received	562	Essex	16
Mail sent out	64	Maidstone	2
Office interviews	1,450	Colchester, North	1
Wards heard from	38	Gosfield, North	2
Children placed out (not wards)..	46	Harrow	2
Wards placed out	36	Sandwich, West	22
Number of children in foster homes	185	Sandwich, East	9
Wards returned to shelter	6	Sandwich	16
Wards visited	163	Tecumseh	5
Warnings given	398	Puce	1
Number of visits outside city.....	214	Stoney Point	2
Police court attendances	211	Kingsville	12
Visits of supervision.....	2,100		
Prosecutions	35	Total	398

FINANCIAL STATEMENT.

Receipts.

Balance brought forward from 1917.....		\$91 87
Grants—		
City of Windsor	\$1,950 00	
Town of Walkerville	250 00	
Town of Ojibway	100 00	
County of Essex	500 00	
		2,800 00
Subscriptions—		
Mocha Temple, London	\$25 00	
Christmas carollers	719 96	
		744 96
Loans—		
Dominion Bank	\$500 00	
W. C. Kennedy	225 00	
		725 00
Bank interest.....		1 65
		\$4,363 48

Disbursements.

Salary, probation officer	\$1,800 00
General and travelling expenses	437 17
Board for children while in custody	356 00
Repairs and supplies for shelter	618 50
Fuel and light	90 35
Printing and office supplies	62 85
Office rental	120 00
Dominion Bank, payment of loan	500 00
W. C. Kennedy, payment of loan	225 00
Interest on bank loan	18 20
Cash in bank	135 41
	\$4,363 48

I have examined the books of The Children's Aid Society and found them correctly kept. Vouchers were produced for all disbursements.

H. W. FARNAN, Auditor.

ST. THOMAS—ELGIN COUNTY.

Inspiring and felicitous addresses and exceptionally interesting reports distinguished the annual meeting of the Children's Aid Societies of St. Thomas and Elgin County. The large attendance was a marked feature and the interest evincèd in the more than ever necessary work of child-welfare augurs well for the further development and success of the objects of the organization.

The President, F. B. Holtby, called on Captain N. H. McGillivray to offer the opening prayer, after which the minutes of the last annual meeting were read and accepted. Rev. J. W. J. Andrew drew attention to the great call at the present time to do our best for children in the community, and in a helpful and encouraging address showed his personal knowledge of the splendid efforts made here and in other cities to improve the environment and assist in the uplift of dependent children.

After the reading of the comprehensive report by the Secretary, Mrs. E. H. Caughell, Dr. C. W. Marlatt, in a cordial manner, referred to it as the finest yet received. President F. B. Holtby, in a resume of the year's work as given in the report, enlarged on the beneficial effect derived from betterment in a child's surroundings, the impetus to live up to the awakening of interest in what is beautiful and good. The improvements in the interior of the Shelter, the pictures, the additional comforts, all contributed to that higher influence exerted in taking children from neglected homes to homes where love abounds.

The Treasurer's report was given by that officer, F. M. Griffin, showing a gratifying improvement in the financial standing of the society. W. J. Shaw, a pioneer in children's aid work, congratulated the President on the excellence of the reports and of the making for better citizenship.

TREASURER'S STATEMENT.

Treasurer's annual statement for the year ending November 1st, 1918, shows:

Receipts.

Balance forward, October 15th, 1917	\$1,191 09
Membership fees	11 50
Donations	245 05
Municipalities, board of children	1,742 53
Municipal grants, city and county	1,025 00
Rummage sale	230 41
Tag day	886 91
Bequests and special donations	1,856 40
Interest	158 23
Picture account	55 00
Sustaining membership	3 00
Sundries	2 78
Total	\$7,407 90

Disbursements.

Salary of secretary	\$466 67
Board of children	1,454 67
Expenses, insurance, telephone, etc.	225 34
Furnishings and upkeep building	309 99
Printing, postage, etc.	95 96
Fuel and gas	139 10
Clothing and sundries	96 92
Victory Bonds and interest on same	3,015 31
Cash in bank	1,603 94
Total	\$7,407 90

Assets.

Cash in bank	\$1,603 94
Victory Bonds	3,000 00
Interest on same	92 02
Grants receivable	400 00
Real estate, Shelter	3,300 00
Furnishings	400 00
Total	\$8,795 96

Liabilities.

Surplus	\$8,795 96
Trust account for wards	92 02

THE SECRETARY'S REPORT.

Mrs. E. H. Caughell, secretary, in her report, said:—

During the year 53 children have been cared for in the Shelter. Of these, 15 were placed there for varying short periods by the magistrate, and were subsequently returned to their parents. One, a ward of St. Thomas, was sent to the Industrial School. Another, a ward of Haldimand County, was committed to the Reformatory. Six wards were placed with their parents, and 24 were placed in foster homes. At the present time there are five resident in the Shelter. Two of these (children of a soldier overseas), have been there for one year, and it is expected will be delivered into his keeping on his return.

As shown by the subjoined statement, your secretary has visited 102 wards of the Society during the year, and in a number of cases (particularly where children have been placed with their parents), numerous calls have been made, and, in fact, constant supervision has been deemed necessary.

In the great majority of cases it is a positive pleasure to visit the homes of the foster parents of our wards.

The work of the Society is now assuming such proportions that larger and more commodious quarters will soon become a necessity. It might, therefore, be advisable for the Society to give the Executive authority to make initial arrangements, having this end in view.

WORK OF THE YEAR.

The following is a detailed statement of the year's work:—

City children committed to Society during the year	19
County children committed to Society during the year	14
Disposed of as follows:—	
City children placed in foster homes	7
City children left with parents	10
Sent to Industrial School	1
In Shelter at present time	1
County children placed in homes	13
Retained in Shelter to assist matron	1
Children in Shelter, October 16th, 1917	11
Children brought to Shelter, not wards	25
Children placed on parole, not wards . . . . .	...
Children returned to parents, not wards	14
Children made during the year	112
Children made wards	33
Sent to Industrial School	1
Sent to Reformatory	1
Wards placed, or replaced	43
Wards returned to Shelter	21
Wards visited	112
Complaints received	40
Investigations	38
Mail received	351
Mail sent out	586
Places visited outside of the city	36

Police court attendance	30
Wards in foster homes heard from	57
Warnings given	12
Children in Shelter once	42
Children in Shelter twice	9
Children in Shelter three times	2

OFFICERS ELECTED.

The election of officers resulted as follows:—

President—F. B. Holtby.

First Vice-President—Dr. C. W. Marlatt.

Second Vice-President—W. J. Shaw.

Third Vice-President—Rev. J. W. J. Andrew.

Fourth Vice-President—C. St. Clair Leitch.

Secretary—Mrs. E. H. Caughell.

Treasurer—F. M. Griffin.

FORT WILLIAM.

The annual meeting of the Children's Aid Society, Fort William electoral district, was held in the public library building.

Among those present were: Miss M. Hannah, Mrs. Layburn, Mrs. J. A. Fife, Rev. E. C. and Mrs. Laker, Mrs. A. Caskey, Capt. G. Greig, Salvation Army; Peter Belluz, A. Snelgrove, Mrs. A. J. Boreham, Mayor Murphy, Ald. J. F. O'Brien, Mrs. F. Blain, Rev. Canon Burt, Rev. Dr. W. F. McCullough, Mrs. W. J. Hicks, Mrs. G. Cole, Rev. F. W. Lee, Mrs. N. M. Patterson, Miss M. J. L. Black, Mrs. C. C. McCullough, Mrs. C. W. Jarvis, Frank Blain.

The minutes of last annual meeting were read and approved.

The financial statement prepared by City Auditor C. England was read and approved, showing disbursements of \$4,209.78 and a balance in hand of \$1.55. For previous years the expenditure has been as follows: 1914, \$5,729.63; 1915, \$5,348.74; 1916, \$3,928.95; 1917, \$4,456.61.

Mayor H. Murphy, who has been treasurer of the Society since September, 1915, was called upon and addressed the meeting, giving a resume of the work of the past year, as compared with previous years, and a forecast of the possible development for the immediate future.

The agent's report for the year 1918 was then presented, showing 316 investigations involving 470 children. Nine children became wards of the Society; nine were returned from foster homes; ten were placed in homes; three sent to Belleville school for the deaf; three to the Provincial Superintendent, and two returned to foster homes after temporary care in the Shelter.

During the same period 41 children appeared before the magistrate, five of whom were committed to industrial schools. The Shelter records show 55 admissions during the year, but, allowing for duplications, there were 42 children cared for in the Shelter in 1918. The average length of stay was 73½ days.

The report closed with human interest stories from the lives of some of the wards. The election of officers and Executive resulted in the following appointments:—

President—A. Snelgrove.

Vice-President—Mrs. Layburn.

Treasurer—H. Murphy.

Hon. Solicitor—John A. Dyke.

Secretary—Frank Blain.

Executive Officers—Resident clergy; Chairman License, Police and Relief Committee, and Chairman Finance Committee of the City Council; Mrs. John King, Mrs. C. W. Jarvis, Mrs. N. M. Paterson, Mrs. T. Love, Mrs. Garrity, Mrs. W. J. Hicks, Mrs. J. A. Fife, Miss Hannah, Mrs. A. J. Boreham, Miss Black, Mrs. S. G. Cole, Mrs. C. C. McCullough, C. E. Chapple, Esq., C. W. Jarvis.

KINGSTON, FRONTENAC COUNTY.

The annual meeting of this Society was held at Kingston, on Friday, November 22nd, 1918, Dr. Richardson, the president, occupying the chair.

The report of the agent, Mr. Pollie, stated that ten children had been committed to the care of the Society for the past year, bringing the total of wards now cared for to 121, of whom 62 are males and 59 females. Of this number, 120 are in good foster homes, and one child is at St. Mary's Orphanage.

All the present officers and Executive, were elected and are as follows:—

President—Dr. A. W. Richardson.

Vice-President—James Halliday.

Secretary—Dr. W. W. Sands.

Treasurer—O. V. Bartels.

Agent and Inspector—John Pollie.

DUNNVILLE, HALDIMAND COUNTY.

The annual meeting of the Society was held in the Town Hall, Dunnville, on Friday, January 17th, 1919.

Dr. H. M. Walker, president, occupied the chair.

The meeting proved very interesting, as the reports presented gave sufficient material for free and helpful discussion. The reports presented showed clearly that the work of the Society had assumed considerable magnitude, and much work was accomplished by the officers.

The matter of a Shelter was discussed at some length, and it was the unanimous conclusion that immediate steps should be taken to secure the same, as many neglected children in the county were left in unhealthy conditions, and should be taken to a place of safety, and have the proper attention given them.

A deputation was appointed to wait upon the County Council at its first sitting, to solicit the co-operation of that body toward the establishment of a Children's Shelter.

The evening session proved intensely interesting to the large audience, when Mr. Axford delivered a lecture, illustrated by lantern views. The lecturer presented views of comparison of children at the time of being apprehended, and after being in the care of the Society for a brief time.

Mayor Edgecombe and Mr. D. Hastings spoke briefly of the valuable work the Society was doing in the county, and commended the aims and support of the work to the citizens of the county. The newly elected president presided at the evening meeting, while Miss Viola Wardell and Mrs. Jennie Lint added to the success of the meeting with musical selections.

The following were elected as officers for the ensuing year:—

Hon. President—R. A. Harrison.

President—Rev. W. J. West.

Vice-President—Dr. H. Walker.

Secretary and Inspector—Chas. R. Bilger.

Treasurer—Geo. P. Brown.

The following were appointed as representatives in the various centres:—

Caledonia—Harrison Arrell.

Jarvis—Robt. Smith.

Hagersville—Rev. J. M. Whitelaw.

Cayuga—Mr. Quinsey.

Selkirk—M. F. Derby.

Dunnville—Chas. R. Bilger.

REPORT OF INSPECTOR.

Number of—

Wards of Haldimand County.....	60	Wards placed	3
Children made wards	3	Wards replaced	6
Wards released	1	Police court attendance	6
Wards sent to Reformatory	1	Mail matter received	150
Complaints	40	Mail matter sent out	210
Investigations made	35	Miles covered	1,125
Families involved in investigations.	15	Office interviews	95
Children	82	Telephone calls	75
Enquiries for children	35	Visits made to wards	115

HAMILTON.

The annual meeting of the Children's Aid Society of Hamilton was held in the board room of the Y.M.C.A. on 18th October, and in the unavoidable absence of the president, W. H. Wardrope, K.C., the chair was taken by Sir John Gibson, K.C. The most interesting item of the meeting was the report presented by the energetic secretary, Mrs. Urquhart. Complaints against parents for neglect reached the high figure of 86, which involved 228 children; children before Juvenile Court, 354, and total children looked after during the year reached 973; all of which goes to show the great necessity for action, and co-operation, not alone of all the members of the Society, but the public in general, as the Society can do very little of itself unless it has the public to support it in its work of caring for the children—the men and women of the future.

The total receipts were \$3,470.25, and expenditure \$2,739.50, leaving a balance on hand of \$730.75. Held in trust for wards, being their own earnings, \$2,093.48, the total of twenty-eight individual accounts.

Much regret was expressed at the retirement of Mr. Wardrope as president, owing to increased private duties. Sheriff Middleton was elected in his stead.

The resignation of Mr. Pinch was received with deep regret after his many years as inspector for the Society, and, while his resignation was accepted, it was hoped he would continue in close touch with the Committee, so that they might always have the benefit of his advice and experience. Mr. Wyllie, of Toronto, was appointed agent.

Mr. J. J. Kelso congratulated the Society on the excellent work done for the past year, and paid a well merited compliment to the Hon. Secretary, Mrs. Urquhart, who alone, through her voluntary service, was the means of adding over \$15,000 to the Society funds.

The following appointments were made:

Hon. Presidents—Adam Brown, W. H. Wardrope, K.C., and Rev. Dr. Sedgewick.

President—Sheriff Middleton.

Vice-Presidents—W. A. Robinson, H. L. Frost, W. H. Lovering.

Recording Secretary—Mrs. Urquhart.

Financial Secretary—Miss Malcolmson.

Treasurer—Mrs. C. A. Hunter.

Agent—W. H. Wyllie.

BELLEVILLE, HASTINGS COUNTY.

The annual meeting of this Society was held on Monday, the 20th January, 1919, in the Y.M.C.A. Buildings, Belleville, when Dr. A. W. Richardson, of Kingston, delivered a very interesting address on "Child Welfare"; the president, Mr. A. E. Bailey, in the chair.

The inspector, Mr. Ruston, presented his report of work done for the year, which read as follows:—

Statistics will show something that has been attempted and accomplished during the past year:—

Applications for children	65
Children brought to Shelter (not wards)	11
Children placed on parole (not wards)	2
Children returned to parents (not wards)	4
Children involved during the year	681
Children made wards C.A.S.	52
Children sent to Industrial School	14
Complaints received	31
Investigations	67
Mail received	1,315
Mail sent out	5,322
Meetings addressed	6
Mileage, approximate	5,676
Interviews, office and 'phone	1,828
Places visited outside city	85
Police Court attendance	137
Wards in foster homes heard from	43
Wards placed out	101
Wards returned to Shelter	37
Wards visited	205
Warnings given	47
Children now in the Shelter	40

In closing, I would quote the words of Phillips Brooks: "He who helps a child helps humanity with a distinctness, with an immediateness, which no other help given to human creatures in any other stage of their human life can ever give again."

"Our work grows greater and will require all your energy to make it a success," declared President A. E. Bailey, at the annual meeting of the Children's Aid Society.

FINANCIAL STANDING OF SOCIETY.

The treasurer, ex-Mayor H. F. Ketcheson, presented his report, showing the status of the Society financially.

Receipts.

Balance from last year, as per audited report	\$629 02
Received from memberships and donations	1,386 18
Received for maintenance	4,872 59
Sundries	11 88
Total receipts	\$6,899 67

Disbursements.

For maintenance	\$4,340 37
For salaries	1,467 87
For equipment	646 00
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Total disbursements	\$6,672 99
Balance	\$226 68

The Nominating Committee, composed of Messrs. E. R. McBride, W. H. Nugent, H. F. Ketcheson, M. W. Mott, and Inspector T. D. Ruston, presented their report of nomination of the officers for the year 1919, the report being adopted:—

Hon. Presidents—T. Ritchie, Esq., A. E. Bailey, Esq.

President—Mr. H. W. Ackerman.

Vice-Presidents—E. R. McBride, W. H. Nugent, Rev. D. C. Ramsay, Mr. Thos. Montgomery, Stirling; Mr. S. B. Rollins, Tweed; Dr. Embury, Bancroft.

Treasurer—Mr. H. F. Ketcheson.

Recording Secretary—Mr. M. W. Mott.

Hon. Solicitor—Mr. W. Carnew, Crown Attorney.

Inspector—Mr. T. D. Ruston.

GODERICH AND HURON COUNTY.

Wednesday was a proud day for the Children's Aid and Humane Society of the County of Huron, especially for those who have been associated with the work since it started close on twenty-five years ago, and the opening of the County Shelter that afternoon is a climax that makes those who have felt the handicap of the lack of such an institution during the years that are gone, utter a fervent "At Last," as did that veteran in the work, the worthy president of the Society, Mr. James Mitchell, who, though hardly recovered from an indisposition which has confined him to his house for some days, could not keep away from the opening of the Shelter. This event is rather a new point of beginning in the work than a climax, and the institution proved its need by receiving, as soon as it was opened, a little boy of two years and a girl of fourteen.

The County Council visited the Shelter in a body, and at two o'clock Warden Elliott formally handed the institution over to the management of the Children's Aid Society, paying a fine compliment to the county agent, Mr. G. M. Elliott, and also to the newly-appointed matron, Miss Bentley, Blyth.

From two o'clock to four the Shelter was open to the public for inspection, and many took the opportunity of looking through the various rooms, which are already sufficiently furnished to commence operations.

At four o'clock a gathering was held at the Shelter, when addresses were given by Mr. J. J. Kelso, Mr. Axford, and the president.

The old officers were re-elected, on motion of Rev. Mr. Ford and Mrs. Carrie, and, on the suggestion of Rev. Mr. Osterhout, a new office, that of honorary solicitor, was created, and Mr. C. Seager, Crown Attorney, was appointed to that position, in recognition of his valuable assistance to the county agent.

Hon. President—W. H. Kerr, Brussels.

President—James Mitchell.

Recording Secretary—A. M. Robertson.

Treasurer—R. G. Reynolds.

Hon. Solicitor—C. Seager.

Mr. Elliott presented the following report:—

I have the honour of presenting my seventh annual report of the Huron County Children's Aid and Humane Society, for the year ending October 31st, 1918.

My work has been a repetition of former years; we have had about the usual number of complaints of delinquency, and the same problems to face, requiring patience and tact in solving them.

During the year there have been seven children given over to the care of the Society by the judge's order. One of these was left with his mother for another chance, three were placed in Stratford Shelter for a few weeks and then returned to parents; three placed in foster homes, one of these was afterwards sent to Victoria Industrial School at Mimico. Two others were sent to the industrial school during the year. One of our wards has been in the Hospital for Sick Children in Toronto since July, 1917, with hip disease. He was out for a couple of months during the summer, and returned in September.

We have visited 120 wards of the Society placed in foster homes in the country, and in some cases several calls have been made. In a few cases constant supervision is necessary.

The following figures are taken from records kept, and will give a partial idea of what is being done:—

Applications for children received..	36	Miles (approximate) travelled	3,925
Complaints received	73	Wards placed or replaced	14
Complaints investigated	67	Wards visited	120
Children involved	155	Warnings given	44
Children made wards of the Society.	7	Office interviews	191
Letters received	556	Phone interviews	208
Letters sent out .	1,406	Sent to industrial school	3
Meetings addressed	13		

The treasurer's report showed that, including a balance from last year of \$208.91, a sum of \$1,773.09 was received for Children's Aid work, while expenses were \$1,811.51.

KENORA.

At the annual meeting of the Humane and Children's Aid Society, held on Tuesday, December 10, the president, in his address, referred to the progress made in the work, during a year of so many changes, and thought the war had stimulated an interest in one's fellow man and caused each to respond with heartfelt sympathy to the needs of others.

The following officers were elected:—

- Hon. President—Mrs. Pither.
- President—Mrs. Diamond.
- First Vice-President—Mrs. Earngey.
- Second Vice-President—Mrs. Scovil.
- Secretary—Mrs. Saylor.
- Assistant Secretary—Mrs. L. Johnson.
- Treasurer—Mrs. Humble.
- Assistant Treasurer—Mrs. Brett.
- Probation Officer—Mrs. Earngey.
- Agent—Chief Gordon.
- Solicitor—Mr. Kinney.

SECRETARY'S REPORT.

In submitting the annual report of the Children's Aid Society, I should like, first of all, to thank the officers and members of the Society for their hearty co-operation in all phases of the work, and for their kindly assistance in smoothing away possible difficulties.

During the past year the Society held six regular meetings, and one special, with an average attendance of eleven.

Owing to the scarcity of labour, the Society has been comparatively immune from demands for assistance. But there are always a few cases, which, through misfortune or ill-health, require help, and to these the Society has held out a helping hand. One family was supplied with clothing and funds to enable them to remove west in the summer, and since then about half of the loan has been refunded. The work of the Children's Aid Department has also received attention.

One child was made a ward of the Society and placed in a foster home in Kenora. Visits have been made to all the wards of the Society living in town, and it is gratifying to note that in every instance an encouraging report was sent in to the department. With but one exception, the reports of the wards from outlying districts have been satisfactory. One girl received her discharge from supervision by the Society, as she has attained her majority. Letters of encouragement have been sent to wards in detention homes.

CHATHAM, KENT COUNTY.

Another most successful year for the Kent Childrens' Aid Society was brought to a close yesterday, when the annual meeting of the Society was held at Harrison Hall with a good attendance of members. The reports of the various officers dealing with the work accomplished during the year were most gratifying.

The report of Sheriff Gemmill, Treasurer of the Society, showed total receipts for the year of \$5,196.50, with a balance in the bank on October 1, 1918, of \$1,194.50. It was also reported that quite a number of the children in the shelter were thrifty and that they had small accounts in the local banks.

In the report presented by Dr. Bray, the secretary, it was stated that during the past year the board had held ten meetings with an average attendance of six members at each meeting and many things had been done, such as improvements at the shelter, also the placing and caring for a great number of children that had come under the notice of the shelter.

Dr. Bray made a motion that Executive Officer Baxter be granted an honorarium of \$75.00 on his year's work, which was regarded splendid in every way. The salary of Mrs. Trumpess, matron at the shelter, was also raised \$6.50 a month from October, 1917. She is also doing splendid work in connection with the shelter.

Practically the same board of directors was again appointed for the following year. They are: Messrs. Coate, Housen, Austin, Dr. Bray, Sheriff Gemmil, McGuigan and Mesdames Hadley, Sheldon, Stephenson, Taylor and Mead.

Ald. Murray Reeve was chosen honorary solicitor and C. E. Beetson, auditor.

In presenting his report, Executive Officer Baxter reported that he had written 280 letters, made 275 visits, made 35 wards of the Society, placed and replaced 42 children; children in county and city police courts, 22; investigations made, 215; children in shelter at present, 17; children who ran away from home, 4.

For the House Committee, Mrs. Hadley presented a complete statement governing stock and produce. Eggs to the value of \$36.39 were produced, butter to the value of \$58.40, made in addition to 3,338 quarts of milk, valued at \$166.90, a total of \$261.69. Feed to the value of \$60 was bought, leaving a net profit of \$201.69. Stock on hand at present consists of two cows, one Jersey calf and 50 chickens, the total valuation being \$325.00.

The Society's agent for the County is Mr. Frank Appleyard.

SARNIA AND LAMBTON COUNTY.

On Friday, November 22nd, 1918, the annual meeting of this Society was held in Sarnia, the president, Mr. Geo. A. Proctor, in the chair. Mr. Proctor reviewed the work of the Society for the past twelve months, and in doing so paid a well-merited tribute of praise to Mr. Wilkinson, the agent and secretary, for his good work for the period under review.

The report of the secretary and agent, and those of the treasurer, F. C. Watson, were then read and adopted.

The following appointments were made for the ensuing year:

President—G. A. Proctor.

First Vice-President—G. L. Philips.

Second Vice-President—John Ferguson.

Treasurer—F. C. Watson.

Secretary—John Wilkinson.

Auditors—Messrs. G. S. Samis and J. F. Elliott.

BROCKVILLE—LEEDS AND GRENVILLE.

The annual meeting of the Childrens' Aid Society was held on January 30th, 1919, in Victoria Building. The president, R. J. Driver, presided, and there were present Rev. Canon H. H. Bedford-Jones, Rev. Canon F. D. Woodcock, Rev. L. E. Davis, Mesdames Smart, McClellan, Winters; Messrs. D. W. Downey, C. A. Winters, W. P. Dailey, James Fitzpatrick, C. E. Baynes-Reed, Alexander Beattie, and the Secretary, I. C. McClean.

In his report the president expressed sincere appreciation of the invaluable aid and assistance rendered by the Women's Auxiliary in carrying on the work of the society. He referred to the excellent services of the agent, C. A. Winters, and stated that during the short life of the local organization, 167 children had been made wards of the Society. Of this number seven were added during the year just passed, and more than 100 children, besides wards, were involved in the Society's activities. Fewer were made wards during the past year, but more complaints were received. He referred to the generosity and benevolence of the citizens in rendering financial assistance to the Society and mentioned a bequest from the late Mrs. J. W. Ridgeway of \$1,000, and a bequest of \$100 from the late Sheldon Y. Brown, Yonge. A local citizen also donated \$200 in Victory Bonds to the Society. Other citizens contributed largely in money, food and clothing to the Society.

The report of the treasurer, Mr. C. E. Baynes-Reed, showed a balance from last year of \$1,852.65. The amount of money received during the past year through grants, bequests, donations and interest totalled \$4,805.70. The Society paid out in salaries, sundry payments and for maintenance, the sums of \$3,096.93, leaving a balance on hand of \$1,708.77.

In presenting the agent's report, Mr. C. A. Winters tendered his resignation from that office, much to the regret of the members of the Society. The importance of the work being done by the Society was outlined in his report, which stated that during the year over 30 complaints concerning conditions in which children were living were received and dealt with. Nearly three times as many investigations of homes as last year were conducted and yet little more than a third as many children were made wards. He cited instances of the remarkable progress being made by wards of the Society. Seven children were made wards during the year just closed. At the beginning of the year the Society had on its working list 150 children, seven of whom have been released from supervision on attaining their majority, which leaves the Society starting the new year with the same number of children as last year. Eighty-seven visitations of wards throughout the United Counties were made during the year and all the homes were found satisfactory, and the children giving entire satisfaction in the vast

majority of instances. Very little difficulty is experienced in placing children. During the year there were 27 children in residence at the shelter. The average stay was placed at 77½ days. At present there are only three children in the shelter. Mr. Winters called the attention of the Society to the prevalent custom of selling cigarettes to minors, and allowing small children, unaccompanied, to enter motion picture shows. Several complaints of this kind have been made, he stated. In closing his somewhat extended report Mr. Winters expressed his appreciation of the faithfulness of the board of management, the Ladies' Auxiliary and the members of the Society.

The reports as received were unanimously adopted and the resignation of Mr. Winters was accepted with deep regret. The election of officers resulted in the following being elected for the year:

Honorary President—A. C. Hardy.

President—W. P. Dailey.

Vice-President—Charles Grant.

Honorary Secretary—I. C. McClean.

Honorary Treasurer—C. E. Baynes-Reed.

Honorary Solicitor—R. J. Driver.

Honorary Physicians—Drs. Judson, Robertson, Purvis, Harding, McBroom and Williams.

Board of Management—Messrs. W. H. Kyle, Frank Row, James Fitzpatrick, D. W. Downey, Rev. R. M. Hamilton, E. A. Mackenzie, Rev. L. E. Davis, C. A. Winters, W. T. Rogers, Mrs. W. G. McClellan, Alex. Beattie and Rev. Canon H. H. Bedford-Jones.

The resignation of Mrs. Swarts, as matron, was accepted, and the appointment of the assistant matron, Mrs. Patterson, to the post of matron was made.

Alexander Beattie was appointed agent of the Society to succeed Mr. Winters.

LENNOX AND ADDINGTON.

The annual meeting of this Society was held at Napanee, on November 22nd, 1918, when the secretary and agent, Mr. Barrett, submitted the report for the year ending 31st October, 1918.

During the year there were 25 applications for children, and 112 individual cases of child neglect dealt with, and 29 cases of complaint investigated.

The treasurer's account showed receipts, \$1,378.67, and expenditure, \$982.13.

The following officers were appointed for the ensuing year:

Hon. Presidents—R. A. Fowler, M.P.P., Dr. T. W. Simpson.

President—Mr. Alpine Wood.

Second Vice-President—Mrs. E. McGurn.

Secretary—Mrs. Hooper.

Treasurer—Mrs. A. W. Grange.

Inspector—F. W. Barrett.

ST. CATHARINES AND LINCOLN COUNTY.

The annual meeting of the Children's Aid Society of the City of St. Catharines and County of Lincoln, was held Tuesday afternoon, November 20th.

The report of the treasurer, Miss H. M. Rogers, showed a total expenditure of \$4,644.98, of which the principal items were: Salaries, \$910; domestic and temporary help, \$310; groceries, \$617; clothing, \$139; bread, \$342; fish and meat, \$198; milk, \$186; medical attendance, \$313. furnishings, \$587.

Officers as follows were elected:

President—C. H. Claus.

Vice-Presidents—The Mayor of St. Catharines and Warden of the County.

Treasurer—Mrs. H. M. Rogers.

Secretary—Mrs. Johnson Clench.

Inspector—R. E. Boyle.

The inspector presented the following summary of the year's work:

Number of foster homes visited	111
Number of homes visited where parents were complained of and also where parents complaining on children asking me to visit them	156
Taken to St. John's Industrial School, at Toronto, boys	12
Taken to Victoria Industrial School, Mimico	3
Number of letters received	490
Number of letters answered	256
Number of telephone calls	400
Police court cases attended	74
Number of children concerned, girls	22
Number of children concerned, boys	153

These police courts were held at St. Catharines, Niagara, Thorold, Dunnville and one at Merriton.

Number of children in shelter at the present time	16
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This number is made up of seven soldiers' children, two girls who cannot be fostered out, leaving seven small children in the shelter. These we would like to secure homes for, if possible, as they are fine little children.

Number of children cared for during the year belonging to mothers who were sick and unable to look after them, also one mother who was held here by the police. This was a woman from Montreal	13
Number of children returned to the shelter	15
Number of children made wards of the Society	10
Number of children fostered out and taken to various places and schools	64
Boys	153
Girls	22
In shelter at present	16
Number whose mothers were sick and unable to care for	13
Children returned to shelter	15
Children wards of the Society	10
Children fostered out during the year	84
Deaths in shelter	1

LONDON—MIDDLESEX COUNTY.

At the annual meeting the Children's Aid Society, held 25th January, 1919, the report of secretary Kelly showed a total of 323 cases for the London juvenile court last year, made up as follows:

Theft	67	Incorrigible	2
Breach of by-law	75	Vagrancy	17
Breaking and entering	8	Assault	5
Damage to property	16	Truancy	13
Disorderly	46	Cruelty to animals	1
Neglected children	19	Juvenile Court	54

These were disposed of as follows:

Discharged	158	Committed to Society's guardian-	
Sentence suspended	76	ship	19
Fined	54		
Withdrawn	4	Comitted to the Industrial School.	2

During the year 53 children were made wards of the Society, and 84 returned from foster homes; soldiers' children temporarily adopted were 16; 77 were returned to parents and 77 placed in foster homes. At the beginning of the year there were 36 children in the home and at the end of the year, 35. There were 230 applications for children for adoption; 326 complaints reported; 266 investigations with 562 children involved, and 225 wards visited. Two children died during the year, one from meningitis, following influenza, and another in a foster home found some carbolic acid and drank it.

Officers elected were:

- President—D. H. McDermid.
- Honorary President—Sheriff D. M. Cameron.
- First Vice-President—Mrs. F. E. Leonard.
- Second Vice-President—W. N. Manning.
- Third Vice-President—Mrs. D. Regan.
- Honorary Superintendent—Inspector Joseph Sanders.
- Secretary—W. E. Kelly.
- Shelter Home Committee—Mr. F. R. Hardy (convenor), Miss F. Lawson, Mrs. C. E. Keene, Mrs. D. Regan and Mrs. D. H. McDermid.
- Foster Home Committee—Mrs. F. E. Leonard (convener), Mrs. T. E. Harrison, Mrs. Yorke Miller, Rev. D. C. McGregor, Major T. J. Murphy.
- Finance Committee—E. V. Buchanan, W. A. Martin, Robert Greene.
- Auditor—C. F. Complin.
- Treasurer—J. I. A. Hunt.

The financial report showed about \$770 in cash on hand, and about \$5,500 in debentures and stock. This latter amount was intended for building extensions. In subscriptions and donations through the year, \$1,817 was received, while the campaign brought in \$9,200, of which one-seventh, however, is to be used for child welfare work. The estimated cost of maintenance for 1919, is between \$10,000 and \$11,000.

SIMCOE—NORFOLK COUNTY.

The annual meeting of the Children's Aid Society of Norfolk County, held on Tuesday evening, November 17th, in Simcoe, had a splendid attendance, the best in many years, in fact. Besides a number of women, several members of the county council were present.

The president, Mr. Frank Reid, gave in concise terms the aims and work of the Society.

The treasurer read his report for the year, among the items being:

Receipts.

County grant	\$250 00
Towns and townships	70 00
Sunday Schools	45 15
County, for board	666 00
Private individuals	256 60
Other sources	30 00

Disbursements.

Printing	\$10 50
Telephone	10 00
Livery bill for agent	52 25
Clothing	92 08
Agent's expenses	43 53
Agent's salary	300 00
Board for children	666 00

In addition, there is on hand something over \$380 to be used for building or acquiring a shelter commodious enough to hold the matron and children comfortably.

Mr. D. E. McIntosh, the agent, read a comprehensive report. Since the formation of the Society in 1908, 208 children have been made wards; 22 of them were taken in charge this year. Of the 22, fourteen are in foster homes, and eight at the shelter. There are 15 children now at the shelter, 7 of them having been returned from foster homes or having remained at the home since last year. A number of the wards have been enrolled in the army, one of them having fallen in battle. The agent visited 170 children in foster homes, and has travelled 2,000 miles. He included in his report words of commendation for the matron, Mrs. Munroe.

The Warden of the County, Mr. J. L. Buck, of Port Rowan, was called upon for an address, and expressed his sympathy with the work of reformation and education carried on by the Society.

The election of officers resulted as follows:

President—Frank Reid.

First Vice-President—H. S. Macpherson.

Second Vice-President—John Campbell.

Treasurer—Geo. Williamson.

Secretary—M. L. House.

Executive Committee—H. F. Cook, J. D. Christie, Thomas Haddow, J. H. Butler, R. Edmonds.

Auditors—J. A. Bowden and N. S. Boughner.

NORTHUMBERLAND AND DURHAM.

The annual meeting of this Society was held at Port Hope, on November 19th, 1918, the president, Mr. John W. Bickle, in the chair. The agent, T. D. McCullough, submitted his report on the work of the Society for the past year, which embraced 93 complaints in reference to neglected children, comprising 395 individuals. Fifty-three were cared for in the shelter during the year, and 37 placed in foster homes.

Brief addresses were delivered by Senator Mulholland, Mr. L. A. Tole, Rev. Isaac Elliott, Rev. W. A. Bunner, Rev. J. A. McLennon, Mr. H. Fulford, Mr. F. W. Galbraith, and Mr. J. J. Kelso, Provincial Superintendent.

The following officers were elected for ensuing year:

Hon. President—Senator Mulholland.

Hon. Vice-President—C. Reheder.

President—Jno. W. Bickle.

Treasurer—H. R. Boulton.

First Vice-President—H. Fulford.

Second Vice-President—L. A. Tole.

Secretary—T. D. McCullough.

OSHAWA—ONTARIO COUNTY.

At the annual meeting of this Society, held at Oshawa, on Friday, November the 22nd, the president, Mr. G. W. McLaughlin, occupied the chair. The agent, E. S. Hall, read his annual report of the work of the Society for the past twelve months which showed that 140 visits had been made outside Oshawa for the year, 95 wards in foster homes visited, 61 cases recorded, which involved 122 children, 20 children were made wards.

The treasurer reported receipts, \$4,763.51, and expenses, \$4,100.00

The following officers were elected:

Hon. President—F. L. Fowke.

President—Rev. John Garbutt.

Vice-Presidents—Col. Farewell, F. Bull. J. D. Storie, G. W. McLaughlin.

Treasurer—J. H. Dent.

Secretary—Stewart Storie.

Agent—Harley W. Elliott.

Much regret was expressed at the retirement of Mr. E. C. Hall, as agent, as the present prosperous condition of the organization is largely due to his untiring efforts on its behalf during the years he has acted as agent. Mr. Hall in reply, thanked the members of the Committee for their kind expressions of opinion, and bespoke their hearty co-operation and help for the newly appointed agent, Mr. H. W. Elliott.

OWEN SOUND—GREY COUNTY.

The annual meeting of the Children's Aid Society was held Thursday evening, February 6th, in Knox Auditorium, with a good attendance. The reports of the different officers showed that the year's work had been most satisfactory; and the financial condition of the Society is good. Its work is increasing and broadening out, branches having been established during the year in Dundalk and Durham; and another branch in Thornbury, and Clarksburg is expected to be organized in the near future.

The Nominating Committee's report was adopted, recommending the following officers:

Hon. President—M. Forhan.

President, H. H. Burgess.

Vice-Presidents—The Warden, Mayor Webster, Judge Sutherland, Rev. P. T. Pilkey, Mr. J. E. Doyle, Mrs. M. C. Brindgewater, Mrs. Jas. Gardner, Mrs. D. R. Dobie, Owen Sound; Dr. A. B. Taylor, Hanover; Dr. J. D. Hammill, Meaford.

Secretary—Miss A. P. Dobie.

Treasurer—J. G. Carrie.

Solicitor—A. D. Creasor.

Constable—S. G. King.

Agent—A. E. Trout.

Shelter Matron—Mrs. A. E. Winter.

The important question of best method of dealing with juvenile crime was brought up, and after full discussion, it was decided, on motion of Rev. Thurlow Fraser, to empower the executive to act in conformity with and support of any movement undertaken by the Sunday-school Association. It was felt that vigorous action should be taken for closer censorship of moving pictures, strict enforcement of the Curfew law, and better supervision generally.

Following is the excellent report presented by Mr. A. E. Trout, Agent of the Children's Aid Society, at its annual meeting, Thursday evening:

Mr. Chairman and Friends:—

During the year 1918, the Children's Aid Society of Grey has dealt with 360 children—to tabulate accurately the work involved would take more time or space than we have at our disposal. 247 wards were visited by your agent; they are all within this County and a very large percentage are doing well, indeed, not a few are in excellent homes where they are being treated as a son or daughter, and are shown every consideration. Your agent has been told, in several places by foster parents, that they never think of the boy or girl as other than their own except when he visits them.

We received 110 complaints during the year and made investigation into 86 of these. We found distressing conditions in some instances. One where a mother was sick in the hospital, there were four children who we removed to the shelter for some months, finally separating the family and placing two of them in foster homes; the mother has the other two. It was hard to part the children when poverty was the only reason. One or two other cases where the mother, because of trouble with her husband, left both him and the children and has not yet returned, though that is many months ago. However, all mothers are not of this type.

The matter of truancy, especially in rural sections, is becoming serious, due in a measure to the removal of the "big brother" from the farm for war purposes; but now the war is over there is no excuse.

Our visiting of wards throughout the County was for the most part pleasant. There were a number of changes in placement due to dissatisfaction, either with the child or in the home, yet in the great majority of cases there is contentment and happiness. The matter of placing children is, we believe, one of the most-important phases of our work. Oh, yes, we ask for references, but these are easy to obtain. A personal visit to every home prior to placing the child would prove valuable and often save trouble later; to do this involves larger expenditure.

During the year our Society received 88 applicants for children; there were 16 children in the shelter not wards, and altogether 54 children passed through the shelter during the year. We received 650 letters and cards and sent out 917 in the interests of children. Your agent had 238 office interviews and 766 telephone interviews. We visited 92 places outside of the town, addressed 5 public gatherings, appeared in police court 31 times, placed out 28 children, issued 107 warnings, visited 247 children and travelled 4,635 miles in connection with the work.

BRAMPTON, PEEL COUNTY.

The annual meeting of the Peel County Children's Aid Society was held at Brampton on Friday, November 29th, the president, Mr. C. D. Gordon, presiding, when the following were elected officers for the ensuing year:

Hon. Vice-Presidents—Hon. R. Blain, Sheriff Henderson, Judge Justin.

President—C. D. Gordon.

First Vice-President—David McClure.

Second Vice-President—Mrs. S. Deeves.

Secretary—Mrs. L. Cheyne.

Treasurer—Mrs. W. S. Morphy.

Inspector—Chas. W. Norton.

The president reported that an arrangement had been come to with Halton County, whereby they have purchased the McGibbon home at Milton, to be used as a Shelter for both the counties of Peel and Halton, with the offices of the agent to be still retained at Brampton.

The agent's reports proved very interesting reading, and showed the great interest Mr. Norton takes in his work on behalf of the young within his district; 201 children were visited, and 293 helped by warning and advice; 16 families helped financially.

STRATFORD AND PERTH COUNTY.

"We have never had a better year in our experience in the progress of this work," declared Hugh Ferguson, Superintendent of the Children's Aid Society, in his report presented at the annual meeting of the Society, held at Stratford on Friday evening. The report which followed bore striking evidence of the truth of Mr. Ferguson's remark.

Mr. C. McIlhargey presided at the meeting.

Mayor Monteith spoke briefly, as did also Messrs. Hunter, Wood and Butcher, of St. Mary's, and John Whyte, of Stratford.

While the attendance was not large, the interest manifested was keen and augurs well for the coming year.

OFFICERS RE-ELECTED.

With three changes in the personnel of the committees, the officers elected were the same as last year, namely:—

Hon. Presidents—Judge of the Juvenile Court, Judge of the County Court, Police Magistrate of the city, Mayor of the city, Warden of the County, and Mayor of St. Mary's.

Hon. Vice-Presidents—All pastors of churches within the city, county, and town of St. Mary's.

President—Sheriff Magwood.

Vice-Presidents—Mr. J. H. Smith, Inspector of Public Schools.

Secretary and Inspector—Hugh Ferguson.

Recording Secretary—Mrs. J. Bottomley.

Treasurer—Mr. R. T. Mussen.

Hon. Solicitor—Mr. W. G. Owens.

Advisory Committee—Sheriff Magwood and Mr. W. G. Owens.

Auditors—Messrs. George Hamilton and James Dickson.

FINANCIAL STATEMENT.

The financial statement showed a balance on hand of \$593.50. The receipts included balance on hand from last year, \$582.42; municipal grants, \$2,250, subscriptions, \$1,314.95, and interest on debenture total, \$4,172.37.

The expenditures totalled \$3,578.87, the principal items of which were salaries of superintendent, matron, assistant and stenographer, \$1,195.21; clothing, boots and shoes, \$266.42; maintenance of Shelter, \$654.38.

PETERBOROUGH.

On the occasion of the twenty-fifth anniversary of the founding of the Children's Aid Society in Peterboro, Mr. J. J. Kelso, of Toronto, who has been the General Superintendent for Ontario of the Society since its inception, gave a retrospective address, and predicted great future for the society.

Mr. E. A. Peck, president of the local Society, presided. On the platform were active members of the Executive, Mrs. J. Knox, Mrs. R. Gibbs, Mrs. Birdsall, Miss Read, the matron of the Children's Aid Shelter, Rev. C. J. Phelan, Mr. J. H. Burnham, M.P., who organized the Society. His Worship Mayor George Duncan, Mr. G. W. Powell, local agent.

A RESUME.

A brief history of the local Society was given by Mr. E. A. Peck.

In 1892, the Ontario Legislature passed the Children's Protection Act, under which the Children's Aid Society of Ontario was formed. Almost immediately after, a Society was started in Peterboro. Its object is to prevent cruelty, and properly feed, clothe and bring up neglected or ill-treated children. The local Society is managed by an Executive, elected yearly; an agent, who is also assistant secretary, and the matron of the Shelter. The funds necessary are voted by the City and County Councils, and the public in general.

Mr. J. H. Burnham, M.P., told how the Society was formed. A Baptist clergyman was the inceptor of such a Society, and Mr. Burnham (this was in the early nineties) wrote to this clergyman, and asked affiliation with the English Society. Shortly after, the Children's Protection Act was passed by the government. Magistrate D. W. Dumble made many good suggestions and did everything to assist. Rev. Father Rudkins, predecessor to Father Phelan, was also a prime mover in the work. There was a good deal of criticism at first, but the members went resolutely forward. The secretaries of the Society have in their time been delegated almost unlimited power. Since the inception of the Society only four secretaries have held office—Mr. J. H. Burnham, now a member of Parliament; Mr. R. B. Dennistoun, now a member of the Appellate Division of the Superior Court of Manitoba, and at present overseas, as Deputy Judge Advocate General of the Canadian Forces; Mr. J. E. L. Goodwill, a leading lawyer of the city, and at present, Mr. Joseph Wearing. For twenty-five years every secretary has been a lawyer.

REV. FATHER PHELAN.

Rev. Father C. J. Phelan, the vice-president of the Society, spoke briefly.

"During the years that we have worked together it has been our aim to help the child, and especially the poor, and make them a credit to the community."

"There is no finer work on earth than helping children," said Mr. Kelso in his opening remarks; "I am very optimistic of the future." He advocated municipal ownership of amusements for children, skating rinks, playgrounds, and other outdoor activities.

Mayor Duncan said that in former years three rinks had been provided by the city council for the children, but this year five rinks will be provided. His Worship moved a vote of thanks to Mr. Kelso for his instructive and very enlightening address.

Mr. Geo. W. Powell, the local agent, seconded it, and it was unanimously endorsed by those present.

PORT ARTHUR.

The annual meeting of the Children's Aid Society of Port Arthur was held in the Council chamber last night. The auditors, Messrs. L. J. B. Bolduc and T. F. Milne, reported the books of the Society in good order. The receipts for the year were \$4,120.93, and the expenditures \$2,449.65, leaving a balance on hand of \$1,671.28, which will be expended in the next few months.

Secretary A. G. Alexander stated that it had been decided to ask the City Council for the same grant as last year, \$200 a month. He advocated the amount be increased, but Dr. C. N. Laurie did not think it necessary, as the Society already had a fair balance in the bank. Mr. Alexander said the Society had drawn thirteen payments during the year. December, 1917, was paid by the city in January, 1918.

Mr. Gibbon reported that \$296 had been received from the Government during the year. He thought the committal charge should be increased to fifty cents for outside wards.

MUCH WORK AHEAD.

In presenting his report, agent and president Ald. George Gibbon said there was considerable work to be done by the Society this year. He referred to children who are suffering neglect on account of death of father. He urged the necessity of a pension by the Government for all widows. This has been more needed since the commencement of the great war. In some cases widows were taken ill, and the children were taken care of by the Children's Aid Society.

Alderman Bolduc said the matter should be taken up, by resolution of the Society, with the Board of Trade and City Council. President Gibbon said it was being taken up by the Social Welfare League of Ontario.

Mr. Hadden said the children were the best asset the country has and too much cannot be done for them.

The president's report showed 20 children brought to the Shelter during 1918, compared with eight in 1917. Thirteen children were returned to their parents, two were placed on parole, and nine were made wards of the Children's Shelter.

Following the reading of the report, Alderman Young asked what procedure was necessary to establish a juvenile court. Mr. Gibbon said the Act was a complicated one, and one the Council or possibly some social welfare society could take up. "The main thing about a juvenile court is that a child is taken before it as a delinquent and not as a criminal," said Mr. Gibbon.

HOUSE COMMITTEE'S REPORT.

Mrs. Maude Dixon, secretary of the House Committee of the Shelter, presented a splendid report of the work of that body during the year. The members of the committee are: Mesdames James McTeigue, J. Graham, Flaherty, Ardell, Campbell, Rodden, Haynes, Wishart, Gibbon, Connor, Sellers, and Mr. John Hadden.

Mrs. Wright, the present matron of the Shelter, received praise in the report of the House Committee. "She is a capable and highly efficient matron, and we have great confidence in her judgment."

The president and secretary were appointed a committee to meet the Relief Committee of the City Council regarding help and assistance for 1919.

The election of officers resulted as follows:

President—Alderman Geo. Gibbon.

Vice-President—Mrs. M. Dixon.

Second Vice-President—Mr. James McTeigue.

Secretary-Treasurer—Mr. A. G. Alexander.

Aldermen Wilson, Young and Bolduc were present and entered into the discussion of matters affecting the administration of the organization.

The names of Miss Dobie, Mrs. Hogan, Mrs. Cantwell, Mrs. Dunn and Alderman Wilson were added to the Executive Committee.

Alderman Young was appointed the Society's representative on the City Council.

Aldermen Wilson and Bolduc proposed the placing of fund boxes in banks and other public buildings, for the purpose of bringing the Children's Aid to the notice of the general public, and at the same time assist in the maintenance. This will be done.

PRINCE EDWARD COUNTY, PICTON.

President—Col. Adams.

Agent—George L. Hubbs.

Number of children made wards	14
Number of children placed out or replaced	19
Number of children returned to parents	8
Wards visited	73
Complaints received	32
Complaints investigated	38
Police Court attendances	27
Warnings given	18
Total children involved, not wards	37
Children placed out, not wards	1
Mail sent out	219
Mail received	287
Total amount paid for maintenance	\$711 45
Paid by county	\$356 60
Paid by parents	354 85
Grant made by county for incidentals	\$100 00
Livery expenses	56 85
\$156 85	

RENFREW.

The secretary of the Children's Aid Society for Renfrew County reports as follows:

In submitting the annual report the Society wish to thank the different societies and organizations, together with the several towns and municipalities, for their hearty support and co-operation during the past year in connection with the affairs of the Children's Aid Society, without which it would be impossible to carry on. Twenty-one townships and municipalities contributed by way of grants the sum of \$560.00.

It is gratifying to have to report that only two children were committed to the industrial schools for the year under review, and one of these has already been returned home on parole.

The greater number of children placed in foster homes have been visited, and conditions were found satisfactory in most cases.

The principles underlying the Juvenile Court Act have been adopted in Arnprior, Renfrew and Pembroke, and these places have been fortunate in securing the services of magistrates who have the interest of the children at heart.

We have had many applications for children for adoption all over the county.

During the year thirteen children were made wards of the Society, twenty were placed in foster, and nine children were returned to the Shelter for replacement, while twenty-six were before the Juvenile Court for different breaches of the law.

A rather exceptional experiment was made during the year of purchasing a house with which to provide a home for a mother and four children. This house is an annex to the Shelter, and is deeded to the Children's Aid Society. The burden, as far as the property is concerned, is not a heavy one, and the principle adopted, after a great deal of consideration, was considered the best plan, so that the family could be kept together, and it is hoped that experiment will turn out satisfactory. To enable us do this some friends have been kind enough to assist financially. The great object of the Children's Aid Society is to keep the family ties intact as far possible.

W. M. H. QUARTERMAINE, *Secretary*.

BARRIE—SIMCOE COUNTY.

The Board, in presenting the annual report, expressed much satisfaction in the success of the year's work in rendering assistance to neglected children throughout the whole county.

The treasurer's report, audited by Mr. Donald Ross, was submitted. It showed receipts, \$2,513.87, and expenditure, \$2,385.19, leaving a balance on hand of \$128.68.

The time given by Mr. T. T. Young as secretary-treasurer is only known by those closely connected with his work. He is always willing to help along in any way the good work of the Society.

INSPECTOR'S REPORT.

During the year, wards, 24 boys and girls; placed out or replaced, 40.

There are 180 wards placed in the county and 220 visits were made. Investigations of complaints, 22.

In doing the work of the year 6,476 miles were covered.

The mail received amounted to 548 pieces and 838 pieces were sent out. Applications for children, 30, and 9 were returned.

We have a few wards who give trouble, but on the whole are very good indeed, and respond well to careful training.

The average foster home on our list is excellent, which accounts for the satisfactory results in the lives of our wards.

The officers elected for ensuing year are:—

President—A. J. Sarjeant.

Vice-President—Dr. A. T. Little.

Sec.-Treasurer—T. T. Young.

Hon. Solicitor—Donald Ross.

Sheriff W. M. Harvey, Rev. H. D. Raymond, S. W. Moore, H. G. Robertson, C. E. Grant (Orillia), F. J. Campbell (Midland), H. E. Prentice (Collingwood).

Inspector—W. J. Justice.

SUDBURY DISTRICT.

The tenth annual meeting of the Sudbury branch of the Children's Aid Society, which was held in the Council chamber on Tuesday evening, January 14th, 1919, was one of the most successful in the history of this branch. Though not nearly as well attended as it should have been, less than fifty of the citizens being present, the reports were so inspiring and the spirit of harmonious co-operation so apparent in the audience, as to augur well for the success of the additional work to be undertaken this year.

The president, Mrs. P. S. Frawley, occupied the chair, and after the minutes of the previous annual meeting were read by the secretary, Mrs. Wm. Kelly, and adopted, Dr. Patterson, the treasurer, gave his report.

This report showed the balance on hand at the beginning of the year to be \$100.33. Receipts during the year, \$61.66; expenditures, \$139.61; balance on hand, \$22.38.

Inspector Elliott was then called upon for his report of the year's work, which was listened to with great interest. Mr. Elliott reported that 24 cases had been handled during the year, involving 67 children, 10 of whom had been made wards of the Society. Of these 67 children, 32 belonged to Sudbury, 5 to Worthington, 8 to Copper Cliff, 9 to Warren, 1 to Creighton Mine, 1 to Toronto, 6 to Chelmsford, 4 to Victoria Mines and 1 on the C.N.R. On these children the Society had expended \$139, or an average of \$2.00 per child, a very much lower amount than that expended in

other places, Ontario County going as high as \$27.50 per head, and St. Thomas, \$24.00. Mr. Elliott also stated that the Society had cared for 302 children in the past ten years.

From organization until 1916 the town had spent \$2,328.05 on industrial schools and orphanages, and \$311.25 on travelling expenses. In 1917-18 a total of \$1,379.60 had been spent on industrial schools and orphanages, the amount being divided as follows: St. John's Industrial School, Toronto, \$236.70; St. Mary's Girls' School, Toronto, \$198.20; other societies, \$151.90.

Touching on the present method of work, Mr. Elliott explained that instead of committing children at once to the Society and from thence to the industrial schools, the local branch now appealed first to the clergyman of the denomination to which a case belonged, to try, if possible, to correct the unsatisfactory conditions by counsel and advice, and financial help when necessary. If this failed, the Society then took charge, but in many cases the Society's intervention had not been required.

One of the happiest and most impressive parts of the inspector's address was his account of the number of boys who had been saved from the brand of the industrial school by this kindly method of work.

It is the hope of the Central Organization that each district will be able to care for its own children, and the new method seems to tend strongly in that direction.

The town is now paying \$810.30 for the wards in the industrial schools, and one of the chief objects of the branch is to reach the boys and girls early enough to prevent the necessity of sending them to these schools.

In the discussion that followed the report, Rev. Father Crowley, Rev. C. W. Follett, Wm. Matheson, F. A. Ricard, and others, took part and many points were brought out; the imperative need of more money and of more members, the need of a school nurse, and a truant officer, being some of the points. As a result of the discussion, it was moved by Father Crowley and seconded by Dr. Patterson, that the municipalities from which the cases come should be asked to contribute to the funds for carrying on the work of the Society. A committee was appointed, consisting of Rev. Father Crowley, Dr. Patterson, and Mrs. Andress, to interview the Council *re* the appointment of a truant officer, and suggesting the name of Mr. Elliott.

It was also moved by Rev. Mr. Follet, seconded by R. H. McCarten, that a committee be appointed to canvass the town for members. Mrs. Andress, Mrs. J. R. Bisset and Mrs. Clary, were named as the nucleus of this committee, with power to add to their number.

The next item being the election of officers, it was moved by J. H. Clary, and seconded by Mrs. W. A. Evans, that in view of the splendid report of the year's work, the officers and members of the board be returned by acclamation. This was carried unanimously. The officers for 1919 will be as follows:

President—Mrs. P. S. Frawley.

Second Vice-President—R. H. McCarten.

Secretary—Mrs. William Kelly.

Treasurer—Dr. W. R. Patterson.

Inspector—George Elliott.

The treasurer and the members of the Finance Committee—Charles McCrea, M.L.A., S. E. Wright, and W. G. Hankinson—will form the Executive Board.

STORMONT, DUNDAS AND GLENGARRY.

The annual meeting of the Children's Aid Society of the United Counties of Stormont, Dundas and Glengarry was held on Wednesday evening, December 4th, 1918, in the library at the Counties' Building. As the Counties' Council was in session during the week many of the members availed themselves of the privilege of being present. In the absence of the president, Mr. W. Pollock, the chair was occupied by Mr. F. D. McLennan.

The report of the treasurer, Mr. Arthur Chevrier, showed that the Society has a cash balance on hand of \$229.99.

The highly efficient and capable agent of the Society, Mr. T. W. Ault, presented his report for the year, from December 1st, 1917, to December 1st, 1918. It showed that during the year there had been committed to the care of the Society 22 children; neglected children visited by agent (as a first offence), 18; children visited but not made wards of the Society, 8; children visited in foster homes, all of whom were found to be well taken care of, 49; one girl was sent to the Shelter in Ottawa; and two boys who had run away from their homes in Montreal were returned.

Mr. Ault also reported that he had appeared before the Finance Committee of the Counties' Council on behalf of a boy now in St. John's Industrial School, Toronto, who is in ill health, and secured permission to have him sent home to his aunt, who has undertaken to care for him in future; and a lad, who is in the Nazareth Orphanage, suffering from infantile paralysis, having lost the use of one of his limbs. The Finance Committee consented to send this boy to the Sick Children's Hospital, Toronto, where he will be kept until he is permanently cured, the counties to bear the expense.

The following officers were elected for 1919:—

Hon. President—O. D. Casselman, M.P., Chesterville.

President—W. A. Craig, Cornwall.

Vice-President—J. J. Calder, Lancaster.

Secretary—J. R. Simpson, Cornwall, re-elected.

Treasurer—Arthur Chevrier, Cornwall, re-elected.

Hon. Solicitor—J. A. Chisholm, Cornwall, re-elected.

Hon. Physician—Dr. C. J. Hamilton, Cornwall, re-elected.

Auditors—G. S. Kilgour and A. D. Norris, Cornwall, re-elected.

Council—Irwin Hilliard, M.P.P., Morrisburg; Hugh Munro, M.P.P., Alexandria; F. D. McLennan, J. E. Tallon, James W. McLeod, T. W. Ault, C. G. Jamieson, A. I. Macdonell, all re-elected; Chas. Lount and A. C. Fetterly.

Agent—T. W. Ault, Cornwall.

HAILEYBURY—TEMISKAMING DISTRICT.

A large and representative number of ladies and gentlemen attended the eighth annual meeting of the Children's Aid Society of Temiskaming at the Council chambers, Haileybury, on Friday evening, January 17th. Mr. R. T. Shillington was chosen chairman, in the absence of Mr. D. L. Jemmett, who was unavoidably absent. The chairman, in his opening address, reviewed the progress the Temiskaming Society had made in the past eight years, and dwelt upon the difficulty experienced in handling a district such as this, where distances are so great that it was considered nothing to call the executive officer to attend a case a hundred miles or so away. In his opinion the Society was fortunate in possessing an officer who devoted all his time to this great work. Many of us forget when meetings are held, but few fail to hear and respond to the call of distress in the children's cause. The Temiskaming Children's Shelter, which has been in successful operation the past three years, is an evidence of the progressiveness of the Society, and to the women of the district its success can undoubtedly be attributed. The chairman, in welcoming the delegates, complimented those who were present from the adjoining towns.

After the minutes of the previous annual meeting were received and adopted, the secretary, Mr. Robert LeHeup, presented his report of the activities of the Society for the past year.

SECRETARY'S REPORT.

During the past year there have been:—

Applications for children	18	Meetings addressed	4
Children brought to Shelter (not wards)	22	Mileage covered (approximately) ..	7,590
Children placed on parole	7	Places visited out of town	102
Children returned to parents	27	Police Court attendance	51
Children involved during year	150	Wards in foster homes heard from.	49
Children made wards	10	Wards placed out	11
Sent to industrial school	1	Wards returned to Shelter	8
Complaints received	73	Wards visited	46
Investigations	70	Warnings given	49

The year just closed has been one of continued progress, and while the number of children involved has been greater than the previous year, the cases in which drastic action was necessary have been considerably fewer.

You will notice that there were only 7 children placed on parole by the court as compared with 21 last year, 10 made wards against 15 in 1917, whilst only one child was sent to the industrial school, he having come here from a town outside the district. This decrease is due, I believe, to the fact that the work of our Society is having its effect on the child problem of Temiskaming.

Your secretary has striven to keep in close touch with conditions throughout the district, has visited 102 homes out of town in the interest of the children, and attended Children's Court 51 times. The figures presented convey no idea of the amount of work involved in handling the many complex problems which arise out of the cases handled. What to do with the wayward child; how to satisfy the boy who has reached the earning stage and is forgetful of the care lavished on him in his earlier years by his foster parents; the care to be exercised in choosing a home for a child, where an error of judgment may work out to the detriment of the child. Every case has to be handled according to the circumstances surrounding it, and no set rule governing them can be followed.

In handling the juvenile delinquent our work has been made easier in recent years by the Juvenile Court of Temiskaming. The judge of that court, Mr. S. Atkinson, has such a knowledge of, and sympathy for, the "bad boy," that his disposition of these children's cases has been remarkably successful, and many a boy and girl will in later years thank him for his interest and advice, given at a time when it must have seemed to the little offenders that everyone's hand was against them.

Our Children's Shelter has done good work this year, in spite of the difficulty experienced in getting suitable help. It seemed almost impossible, with the limited means at our disposal, to secure a matron with sufficient interest and ability to properly manage the institution, and while conditions there may be open to some criticism during the past twelve months, I hope enough interest will be taken by the Society to have every defect remedied. We have an institution here of which we may all feel justly proud, and one that is worthy of the support of all, and I would be glad to see the few faithful women workers, who have stuck with us for the past three trying years, greatly assisted.

The report of the Temiskaming Shelter is as follows:—

Children cared for	52
In residence, average number per month	16
Cost of maintenance per month per child	\$13

The fifty-two children came from the following places:—

Town of Cobalt	15	Town of Cochrane	4
Town of Haileybury	6	Township of Coleman	3
Town of New Liskeard	4	Northern townships	19
Town of Iroquois Falls	1		

These were maintained as follows:—

By Provincial Government	10	By Children's Aid Society of Temis-	
By parents	17	kaming	25

TREASURER'S REPORT.

(Year ending November 1st, 1918.)

Receipts.

Balance in bank, November 15th, 1917	\$9 76
For maintenance of wards—	
Parents	380 25
Provincial Government	394 40
Town of Timmins	31 40
Donations, individuals and firms	72 50
Donations, societies and lodges	264 77
Cobalt Branch, Children's Aid Society	400 00
Membership fees	39 00
Grants, municipalities	775 00
Borrowed, Union Bank	900 00
Tag day and entertainments	176 50
Collection boxes	13 80
1917 Victory Loan Committee, donation	1,087 50
	<hr/>
	\$4,544 88
Cheques outstanding	14 88
	<hr/>
	\$4,559 63

Disbursements.

Shelter expenses	\$2,242 24
Inspector's salary	720 00
Postage, telegrams, etc.	26 98
Transportation and travelling expenses	43 12
Loans from Union Bank repaid	350 00
Interest and exchange	49 16
Printing and stationery	25 75
Shelter purchase	1,000 00
Interest on Shelter	100 00
Balance on hand, November 1, 1918	2 38
	<hr/>
	\$4,559 63

SHELTER.

Receipts.

From Children's Aid Society	\$2,242 24
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Disbursements.

Fuel	\$241 03
Provisions	958 96
Clothing	41 79
Repairs and decorating	249 98
Medicines, drugs and school supplies	45 43
Telephone	21 90
Electric light	21 28
Laundry and cleaning	100 45
Water rates and taxes	18 00
House furnishings	118 94
Sundries	9 30
Salaries	415 00
	<hr/>
	\$2,242 24

The treasurer, Mr. Geo. T. Smith, then addressed the meeting, and in the course of his remarks said that the Society was indeed fortunate in the selection of its president and secretary, and made many complimentary references to the manner in which they and the committees working with them had conducted the affairs of the organization, and mentioned particularly the estimation in which the secretary was held, not only locally, but in every section of the district. Mr. Smith, in concluding, paid a glowing tribute to the 1917 Victory Loan committee men, who subscribed the splendid sum of \$1,087.50, to be applied on purchase price of the Shelter. He also thanked all who had helped to make the financial burden lighter.

The treasurer's statement was then read, and it showed the Society to be in a healthy state financially.

Interesting talks were then given by Rev. H. A. Sims, Rev. H. D. J. Brosseau, Rev. J. A. Donnell, Rev. F. C. Elliott, J. J. Denny, and J. H. Tough.

The election of officers resulted as follows:—

Hon. Presidents—Mayor M. McKinnon, Cobalt; Reeve D. W. McLeod, Coleman Township; Mayor E. M. Goodman, New Liskeard; Mayor N. J. MacAulay, Haileybury.

President—D. L. Jemmett, Haileybury.

Vice-Presidents—Fraser D. Reid, Cobalt; C. A. Byam, New Liskeard; S. G. McCoubrey, Iroquois Falls.

Treasurer—Geo. T. Smith.

Secretary and Executive Officer—Robert LeHeup.

Auditor—H. A. Day.

LINDSAY—VICTORIA COUNTY.

The annual meeting of the Children's Aid Society was held in the Committee Room of the Public Library, Lindsay, on Tuesday, December 16th. The president, Mr. G. H. M. Baker, occupied the chair.

OFFICERS ELECTED.

President—Mr. G. H. M. Baker.

First Vice-President—Mrs. Geo. E. Rea.

Second Vice-President—Robt. Naylor.

Third Vice-President—Mayor Kylie.

Secretary—Mrs. Sharpe.

Treasurer—Mrs. Milne.

Council of Ladies and Gentlemen—Mesdames Rea, Henderson, Sisson, Carter, Kitchener, Baker, Marsh, Miss Twamley, Miss Weldon, Miss Hanahoe, Rev. Canon Marsh, Rev. E. V. Tilton, Rev. Mr. Coon, Rev. Mr. Bryant, Rev. Fr. O’Leary, Rev. Mr. McIntosh, Captain Luxton, Salvation Army; Mr. Aylesworth, Mr Coombs.

The treasurer’s report showed receipts, \$1,979.75 and expenditures, \$1,909.01.

SECRETARY’S REPORT.

Nine regular and two special meetings were held with an average attendance of eight members.

Number of children in shelter at date of last annual meeting, 14.

During the period between October 31, 1917, and October 31, 1918, altogether 40 children had resided in our shelter.

Children made wards.....	9	Children returned for placement....	2
Children placed in foster homes	5		
Children wards returned to parents.	6	Children sent to Industrial School..	1
Children not wards returned to parents	8	Total number in shelter at present.	7

The shelter has been undergoing repairs, consisting of a newly shingled roof and cave troughs, which will add greatly to its comfort. The public has been very kind and generous in contributing clothing and provisions. A large amount of fruit and vegetables has been received from the pupils of the several schools in town for which your board has been very grateful. The work undertaken by your Shelter Committee, and the buying and clothing committees, has been most satisfactorily done. The duties of the matron and her assistant have at all times been performed in the most faithful and painstaking manner.

WATERLOO COUNTY.

The annual meeting af the Children’s Aid Society of Waterloo County, was held at the residence of J. R. Strickland, near Freeport, on Thursday afternoon, February 13th, 1919, at three o’clock. The executive was fully represented. President D. N. Pannabaker presided.

The usual reports from the officers were presented, and the work shown to be in better shape than it has been for years past.

The taking over of the juvenile court end of the work, and the opening of the Coombe Shelter, at Hespeler, under the efficient and careful management of Mr. and Mrs. Pullam and staff, has made a marvellous change in the carrying on of this very important work in Waterloo County. The shelter is one that the public may well be proud of and it is at once a credit to the council by whose liberality it was opened, and to the trustee board who have its more immediate management in hand.

- The election of officers for the ensuing year took place, with the following result:
- President*—Mr. D. N. Pannabaker, Hespeler.
 - First Vice-President*—Rev. Theo. Spetz, Kitchener.
 - Second Vice-President*—Mr. S. J. McLane, Galt.
 - Secretary-Treasurer*—Rev. P. J. Meyer, Hespeler.
 - Hespeler Branch Representative*—Mr. Eli S. Beer.

The president, in referring to the resignation of Mr. Strickland, the secretary-treasurer of the Society for about ten years, expressed his deep sense of regret that owing to Mr. Strickland and family moving to Woodstock, Vermont, in a few weeks,

it became necessary to sever the very pleasant relations that have existed between him and the Children's Aid work of this county. Coupled with the name of Mrs. Strickland, a resolution of appreciation was unanimously passed with the hope that in their new home a similar field of usefulness would open to them. By a unanimous vote it was decided to present Mr. and Mrs. Strickland with a filing cabinet, which they had so faithfully and efficiently used, as a slight token of the esteem of this Society for their painstaking work for the children.

The following resolution was also passed: Moved by Mr. Beer, seconded by Rev. T. Spetz, that this Society desires to place itself on record as endorsing the ringing of the curfew, as provided by statute, thus giving notice that all children must be at home at nine o'clock p.m., and we urge all municipalities to take up this important matter, and that a copy of this resolution be sent to the clerk of each municipality in the county, and to the publisher of each paper in the county.

GALT BRANCH.

The annual meeting of the Galt Branch of the Children's Aid Society was held on Wednesday afternoon, February 6th, 1919, and the reports presented were very gratifying.

Officers elected for 1919 were:

President—D. A. Barnes.

Vice-President—Mrs. J. Lash.

Secretary—Mrs. J. E. Keyes.

Treasurer—Miss M. Kay.

SECRETARY'S REPORT.

The following report was submitted by the secretary, Mrs. J. E. Keyes:

In reviewing the work of the Children's Aid Society for the past year, it is gratifying to state that in many cases of alleged neglect of children by visiting the families complained of and serving the usual notice, a decided improvement has taken place. In order that the work might be done as effectively as possible, each member was expected to do personal visitation and investigation when called upon, and when they thought it necessary the society's agent, Mr. Pullam, was called in. To this we received a very generous response and those who undertook the work did it faithfully.

As the Children's Aid Society aim to secure for neglected children such conditions that they may have full opportunity to grow up to useful citizenship, its work is truly patriotic. Our executive officer, Mr. Pullam, has been very diligent during 1918, ever having before him the welfare of the child. Our president, Mr. D. A. Barnes, has been as usual ever ready to do his share and to him is due in a large measure the success of the Society.

Our board is made up of twelve members, seven ladies and five gentlemen. The number of meetings held during the year was ten, with an average attendance of seven. The members have made 160 visits during the year. About forty juveniles, including neglected and dependent children, were brought before the court.

Nineteen were made Galt wards, ten Kitchener, eleven County.

In conclusion, we hope that the board of 1919 will realize their responsibilities and that the year will be filled with good deeds and kindness toward neglected and dependent orphan children.

NIAGARA FALLS.

At the annual meeting of this Society, the following officers were elected.

Hon. President—Charles Black.

President—N. Fielding.

Vice-President—Mrs. Geo. Payne.

Secretary—Miss M. E. Smith.

Treasurer—J. Cadman.

Inspector—W. E. Jones.

Regular monthly meetings of the board were held and child welfare work taken up in a practical way. All cases of neglected or ill-treated children were promptly investigated by the inspector. Many adventurous lads running away from their homes in Toronto and other centres were detained in their attempt to cross over into the United States, and after kindly admonition were safely transferred back to their parents.

WELLAND COUNTY.

The annual meeting of this Society was held in the Court House, Welland, on Tuesday, October 8th, 1918, when the following were elected officers for the ensuing year:

President—Robert Cooper.

First Vice-President—Mrs. Hardison.

Second Vice-President—Mrs. O'Neil.

Secretary—John Flower.

Treasurer—J. H. McGrail.

Mr. J. J. Kelso was present and gave a helpful address as to the necessity of an energetic organization in connection with child welfare. He pointed out how necessary it was to have their shelter up-to-date, and equipped with everything to make children happy and contented. While saying this he impressed on the committee that the shelter should not be looked upon as a permanent home, but merely a stepping-stone, or half-way house towards suitable foster homes. He expressed the hope also that a good agent would be appointed in the near future.

GUELPH—WELLINGTON COUNTY.

The annual meeting of this Society was held at Guelph, on November 28th, 1918. The president, Sheriff A. S. Allen, occupied the chair. The reports presented showed that the society was in a very flourishing condition, both as to its finances, and work in connection with the care of children. The treasurer reported that a sum of \$5,719.02 was received during the year, and that the expenditure amounted to \$4,165.92, leaving a balance on hand of \$1,553.10.

The inspector reports that 68 children were admitted to the shelter during the year, and that 465 children came directly under the care of the Society for the twelve months under review.

The following officers were elected for the ensuing year:

Hon. President—Mrs. E. Chadwick.

President—Sheriff A. S. Allen.

First Vice-President—Mrs. Thos. Goldie.

Second Vice-President—Rev. C. H. Buckland.

Third Vice-President—Rev. Geo. A. Little.

Secretary—Miss J. C. Melvin.

Treasurer—T. G. McMaster.

Inspector—Rev. Amos Tovell.

TORONTO.

An urgent appeal for funds and a request that the City Council assume the responsibility of delinquent children, were the features of a stirring address by Mr. J. K. MacDonald, president of the Children's Aid Society, which held its 27th annual meeting, November 28th, 1918, at 229 Simcoe Street. Mr. MacDonald emphasized the fact that, despite the efforts of the board of management, they had a deficit of over \$3,000.

During the past year, 1,423 children were admitted to the shelter and detention home, representing a total number of 24,760 days in residence. The number of complaints of neglected children and juvenile court cases was 2,782, involving the interest of 4,422 children. There were 128 children adopted, and of this number 73 were under four years of age, making a total of 1,505 since the society was organized. The total number of cases since the society was founded, 39,849, involving the interest of 59,036.

Mr. MacDonald stated that it was most regrettable to think the city has made no provision to care for the delinquent children. The care of mentally defective children was another problem dealt with, and the chairman urged that the Government should take up the work.

The treasurer's report showed the receipts to be \$20,014.73, and disbursements \$23,269.60, with a bank overdraft on September 30th of \$3,354.87.

The following officers were elected:

President—J. K. MacDonald.

Vice-President—W. Harley Smith, M.D.; Hon. Thos. Crawford, T. Millman, M.D.;

C. C. Van Norman, R. S. Baird.

Treasurer—A. M. Campbell.

Hon. Solicitor—W. B. Raymond.

Secretary and Inspector—Wm. Duncan.

REPORT
OF THE
Board of License Commissioners
for Ontario

ON THE OPERATION OF THE
ONTARIO TEMPERANCE ACT

FOR THE YEAR

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

Printed and Published by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1919

To His Honour SIR JOHN STRATHEARN HENDRIE, K.C.M.G., C.V.O., a Colonel in
the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your honour the Report of the Board of License Commissioners for Ontario on the Operation of *The Ontario Temperance Act* for 1918.

Respectfully submitted,

WM. DAVID McPHERSON,

Secretary.

Provincial Secretary's Department,
March 15th, 1919.

REPORT
OF THE
BOARD OF LICENSE COMMISSIONERS FOR ONTARIO
ON THE OPERATION OF THE
ONTARIO TEMPERANCE ACT
FOR THE LICENSE YEAR 1917-1918.

PARLIAMENT BUILDINGS, TORONTO, March 15th, 1919.

TO THE HONOURABLE W. D. MCPHERSON,

Provincial Secretary of the Province of Ontario.

SIR,—The Board of License Commissioners for Ontario has the honour to submit its Third Annual Report covering the operation of *The Ontario Temperance Act* for the license year of 1917-1918, ending April 30th, 1918.

THE SCHEDULES.

Schedule "A" shows the number of convictions and dismissals under the *Ontario Temperance Act* for the license year 1917-18. The number of convictions of Standard Hotel licensees under this heading were 47, and 14 dismissals, against 3,238 convictions of non-licensees and 654 dismissals. Of the latter, 1,809 convictions and 163 dismissals were upon charges of being found in public places in an intoxicated condition. The previous report showed 80 convictions of Standard Hotel licensees and 28 dismissals, and 3,135 convictions of non-licensees and 594 dismissals. The convictions and dismissals shown in the previous report growing out of charges of intoxication in a public place were respectively 2,011 and 183.

Schedule "A (1)" makes a similar return of convictions and dismissals in territory under *The Canada Temperance Act* for the license year 1917-18, showing 93 convictions and 15 dismissals, as against 101 and 17 respectively in the previous report.

Schedule "B" shows the revenue accruing to the Province under *The Ontario Temperance Act* from fines imposed thereunder by license districts, the total revenue from this source for the license year being \$204,514.38. The previous report showed a total under this head of \$184,717.49.

Schedule "C" shows the expenses for enforcing *The Ontario Temperance Act* by districts for the license year 1917-18, the total being \$118,982.07 as compared with \$112,053.59 in the last report.

Schedule "D" summarizes the sources which go to make up the total revenue from this Branch for the *fiscal year* ending 31st October, 1918, \$213,709.44, as compared with \$192,531.84 for the previous year, or an increase of \$21,177.60. Against this total of \$213,709.44 may be placed the expenses of law enforcement.

including salaries of Provincial and local inspectors, law costs, salaries and disbursements of members of the Board and office staff for the fiscal year, amounting to \$210,828.58.

Schedule "E" shows revenues accruing to municipalities which have appointed officers under Section 120 of *The Ontario Temperance Act*. These municipalities have received revenues in fines up to the 30th April, 1918, of \$338,228.54 and the revenues from the same source received by the municipalities for the year ending 31st October, 1918, amounted to \$332,629.54, being a considerable increase over the corresponding period of the previous year, which was \$305,466.76. This amount, together with the sum received by the Province for the corresponding period, namely, \$213,709.44, makes the total revenue received between the Province and the municipalities of \$546,338.98, as compared with \$497,998.60 in last report.

Schedule "F" shows the distribution of Standard Hotels licensed under Section 146, by license districts. These Standard Hotels number 1,250 at the time of this report.

Schedule "G" shows the number of commitments to jail for drunkenness from 1885 to 1918, inclusive.

VENDORS AND PERMITS.

Seven licensed vendorships have been granted under Section 3, two being located in Toronto, and one each in Hamilton, London, Ottawa, Kingston and Windsor.

There were 420 manufacturers' permits issued under Section 121 for the purchase of alcohol and other liquor for the license year ended April 30th, 1918.

Twenty permits were issued under Section 44 to manufacturers for the sale of native wine.

THE ONTARIO TEMPERANCE ACT.

Although this Act has been in force about two and a half years, a resumé of its chief provisions may be in place. The Act is limited by Dominion control of trade and commerce, hence it prohibits the sale of liquor for beverage purposes only within the Province of Ontario. This leaves unchallenged, so far as this Act is concerned, the right of a private individual to import intoxicating liquor for personal and family use from another Province or a foreign country. Liquor is construed to be intoxicating which contains more than 2½ per cent. proof spirits by volume.

In support of the prohibition of sale within the Province for beverage purposes, heavy penalties in fines and imprisonments are imposed for keeping, having or selling liquor under circumstances as defined in the Act, more especially if committed outside the accused's private dwelling, as to which the Act contains precise requirements.

The prohibition is especially stringent upon public places, notably hotels and clubs.

Illegal dealing in or consumption of liquor is punishable by heavy penalties, and drunkenness in a public place is an offence under the Act, punishable by fine or imprisonment.

Provision is made for legal use of liquor for non-beverage purposes, namely, medicinal, sacramental, manufacturing, scientific and mechanical, for the supply of which druggists, and seven special licensed vendors (Section 3) in six different Provincial centres, are permitted to sell under restrictions defined in the Act. In

short, liquor is procurable in the Province for practically all non-beverage purposes, but its sale within the Province for beverage purposes is illegal.

THE DOMINION ORDER-IN-COUNCIL.

Since the last Annual Report of this Board, further prohibitory restrictions were put in force through Order-in-Council of the Dominion Government, dated March 11th, 1918, promulgated by virtue of the *War Measures Act* and declared to be in force until the end of the war and for one year thereafter.

This Order-in-Council prohibits manufacture, sale and importation of intoxicating liquor (adopting the same definition thereof as in *The Ontario Temperance Act*) in any "prohibited area" in the Dominion after April 1st, 1918, except that native wine could still be both sold and manufactured in Ontario (being permitted by *The Ontario Temperance Act*) until December 31st, 1918, which date was later extended to April 30th, 1919.

THE BOARD'S DUTIES.

This Board is charged with the administration of *The Ontario Temperance Act* throughout the Province, and of *The Canada Temperance Act* as well in four counties (Huron, Perth, Halton and Manitoulin) where the latter continues in force. *The Ontario Temperance Act* involves oversight by the Board of all permitted sale and use of liquor by druggists, doctors, licensed vendors, manufacturers, makers of native wines, etc., the Board being empowered to make regulations in certain cases which have the force of law, and receiving periodical reports relative to sales under the classes mentioned, and exercising other powers more or less analogous to those cited, including regulation of Standard Hotels. All legal sales of liquor pass constantly under the Board's review, and the Board's Inspectors and other officers busy themselves under its direction in enforcement of the Act.

THE MEDICAL PROFESSION.

In view of there having been a number of convictions of medical practitioners for violation of Section 51 growing out of excessive issue of quart prescriptions of liquor upon licensed vendors, it is due to the profession at large to say that such practitioners are out of harmony with the standard set by the profession.

Statistics of medical prescriptions filled by the seven licensed vendors for the last five months of 1918 (August to December, inclusive) show that 89.06 per cent. of physicians who issued such prescriptions issued within 50 per month, their actual average being 8.53 per month. In contrast to these, 10.93 per cent. issued over 50 per month, their average being 150.80 per month. If those who issued over 100 per month were separated, it is estimated they would be found to be not over 2 or 3 per cent. of the whole.

Further comparison is afforded by the fact that the average number of vendor prescriptions issued by all doctors issuing such prescriptions, including high and low, was only 24.16 per month. In the Board's opinion the profession itself thus sets a standard to which attention should be drawn.

CONFISCATED LIQUOR.

Large quantities of contraband liquor have been seized and confiscated by the courts from time to time, ranging from a few bottles to carloads, since the Ontario Temperance Act came into force in September, 1916. Sale of about

\$16,000 worth of this liquor has been made to licensed vendors under Section 71, the proceeds going into revenue, besides which donations to Provincial hospitals and institutions and other hospitals for medicinal uses have been made of an estimated value of \$10,000.

Considerable stocks remain, approximating in value \$50,000 according to estimate. Some of this is of inferior brands which cannot be sold in their present form, but the Board hopes to find a way of rendering it adaptable for industrial or mechanical uses and so adding to the revenue.

The Board has arranged for special quarters for storage of confiscated liquors which will afford facilities for sorting and classifying and listing, which have been impracticable up to the present.

INSPECTORS AND STAFF.

The Board desires to express appreciation of the services of the Provincial and Local Inspectors and officers of the staff, who by faithful and sympathetic work, often marked by able initiative, have contributed to the successful enforcement of the Act.

PROVINCIAL POLICE.

Appreciation and thanks are also due Superintendent Rogers and members of the Provincial Police, notably in frontier districts, for assistance to the same end. Members of the Provincial Police are exceptionally effective, and their help has been of great importance to the Board and its officers.

Respectfully submitted,

J. D. FLAVELLE,

Chairman.

SCHEDULE A.

Statement showing number of convictions and dismissals of cases for infractions of the Ontario Temperance Act for the license year ending April 30th, 1918.

License District.	Against Holders of Standard Hotel Licenses.		Against Non-Licensees.	
	No. of Convictions.	No. of Dismissals.	No. of Convictions.	No. of Dismissals.
Algoma.....			34	17
Brant			182	7
Bruce	1		26	6
Carleton	1		17	.....
Chatham and part Co. Kent			16	12
Dufferin and part Co. Simcoe.....			29	9
Dundas			39	11
Elgin.....			41	7
Essex	2	1	51	7
Frontenac, including Kingston			60	12
Grenville.....	1		43	6
Grey			83	41
Guelph and part Co. Wellington			23	2
Halton			65	7
Hamilton and part Co. Wentworth.....	8	2	53	7
Hastings	2		37	3
Huron, North (under Canada Temperance Act).....			26	6
Huron, South (under Canada Temperance Act).....			21	.....
Kent			6	2
Kenora	2		1	1
Lambton, East			20	4
Lambton, West			76	4
Lanark			33	34
Leeds, including Brockville			129	23
Lennox and Addington.....		3	39	1
Lincoln		1	20	10
Manitoulin (Canada Temperance Act)....			5	.....
Middlesex, including London	1		31	11
Nipissing	2		87	.....
Niagara Falls and part Co. Welland			147	3
Norfolk and Haldimand.....	1		34	9
Northumberland and Durham			38	3
Ontario.....			49	9
Ottawa, including Eastview.....			10	3
Oxford	1		10	1
Parry Sound.....			131	34
Peel (under Canada Temperance Act)....			1	.....
Perth (under Canada Temperance Act), including Stratford (Ontario Temper- ance Act).....			51	.....
Peterboro.....			38	12
Port Arthur and Fort William	1	4	58	4
Prescott			20	3
Prince Edward and part Co. Hastings ...	4		71	6
Rainy River			22	6
Renfrew.....			66	12
Russell.....	4		6	2
Sault Ste. Marie			51	6
Simcoe and Muskoka	1		74	15
Stormont and Glengarry			80	21
Sudbury.....	1		268	84
Temiskaming			493	50
Toronto	4		94	41

SCHEDULE A.—Continued.

License District.	Against Holders of Standard Hotel Licenses.		Against Non-Licensees.	
	No. of Convictions.	No. of Dismissals.	No. of Convictions.	No. of Dismissals.
Victoria and Haliburton			55	10
Waterloo	5	1	9	9
Welland			2	4
Wellington.....	1		2	1
Wentworth			33	10
Windsor	1	1	5	7
York	1	1	10	1
Totals.....	47	14	3,238	654
Totals, previous report	80	28	3,135	594

Included in the foregoing cases are 1,809 convictions and 163 dismissals under charges of being found in a public place in an intoxicated condition, as compared with 2,011 and 183 respectively in previous report.

SCHEDULE A (1).

Statement showing number of convictions and dismissals under charges of violations of the Canada Temperance Act during the year ending April 30th, 1918.

License District.	Convictions.	Dismissals.
Huron, North	7	6
Huron, South	29	1
Manitoulin.....	18	1
Peel.....	9	6
Perth (excluding the City of Stratford) ..	30	1
Totals.....	93	15
Totals, previous report	101	17

SCHEDULE B.

Statement showing amounts collected and payable to the Province for fines imposed under the Ontario Temperance Act, in each License District, for the license year ending the 30th April, 1918.

Algoma	\$1,964 45	Peterborough East	210 00
Brant	1,620 00	Peterborough West	2,365 00
Bruce	1,660 00	Port Arthur	10,140 00
Carleton	730 00	Prescott	550 00
Chatham	2,160 00	Prince Edward	9,180 00
Dufferin	2,255 00	Rainy River	1,475 00
Dundas	2,540 00	Renfrew	6,052 15
Elgin	1,875 00	Russell	882 00
Essex	44 20	Sault Ste. Marie	7,350 00
Frontenac	2,595 00	Simcoe and Muskoka	2,523 47
Grenville	1,102 00	Stormont and Glengarry	4,421 10
Grey	5,277 75	Sudbury	15,970 00
Guelph	1,750 00	Temiskaming	23,270 00
Halton	535 00	Toronto	10,600 00
Hamilton	12,140 00	Victoria and Haliburton	1,343 00
Hastings	2,140 00	Waterloo	2,820 00
Kent	650 00	Welland	7,325 00
Kenora	600 00	Wellington	625 00
Lambton East	1,625 00	Windsor	7,310 00
Lambton West	2,195 00	Wentworth	1,245 00
Lanark	2,166 25	York	1,550 00
Leeds	5,095 24		
Lennox and Addington	2,915 00		\$201,446 41
Lincoln	2,450 00	ADDITIONAL.	
Middlesex	2,390 00	Manitoulin	20 00
Nipissing	3,067 00	Huron, North	395 00
Niagara Falls	7,005 00	Huron, South	210 00
Norfolk and Haldimand.....	1,840 00	Perth	1,660 00
Northumberland and Durham	2,015 00	Provincial Officers	200 00
Ontario	2,115 00	Peel	
Ottawa	1,700 00	Sundry Magistrates	592 97
Oxford	1,045 00		
Parry Sound	1,592 00		
		Total	\$204,514 38
		Total previous report..	\$184,717 49

SCHEDULE C.

Statement showing expenses of enforcing Ontario Temperance Act in each License District for the license year ending 30th April, 1918.

Algoma	\$2,237 99	Ontario	1,870 35
Brant	2,040 15	Ottawa	2,037 15
Bruce	2,193 42	Oxford	1,442 58
Carleton	1,799 21	Parry Sound	1,861 22
Chatham	1,388 77	Peterborough	1,783 40
Dufferin	2,822 06	Provincial Officer, East Peter-	
Dundas	1,210 76	borough	323 95
Elgin	1,902 39	Port Arthur	1,962 09
Essex	2,293 79	Prescott	1,340 63
Frontenac	2,546 49	Prince Edward	2,541 96
Grenville	1,561 81	Rainy River	1,248 80
Grey	2,932 36	Renfrew	1,883 06
Guelph	2,048 59	Russell	1,883 94
Halton	1,151 37	Sault Ste. Marie	2,185 85
Hamilton	3,461 65	Simcoe and Muskoka	2,948 80
Hastings	1,909 57	Stormont and Glengarry	3,108 92
Kent	728 37	Sudbury	7,139 95
Kenora	1,075 15	Temiskaming	2,165 60
Lambton, East	826 83	Toronto	6,730 18
Lambton, West	1,765 87	Victoria and Haliburton	1,995 79
Lanark	2,422 13	Waterloo	2,016 85
Leeds	2,310 51	Welland	1,366 56
Provincial Officer for Leeds		Wellington	1,059 62
and Grenville and Stormont,		Wentworth	1,292 22
Dundas and Glengarry	1,485 75	Windsor	3,685 46
Lennox and Addington	1,927 94	York	1,902 34
Provincial Officer for Adding-			
ton	1,219 15		
Lincoln	1,990 44		
Middlesex	2,881 97		
Nipissing	2,131 97		
Niagara Falls	1,648 38		
Norfolk and Haldimand	2,455 80		
Northumberland and Durham	1,871 67		

ADDITIONAL.

Huron, North	234 62
Huron, South	78 85
Perth	649 02

Total\$118,982 07

Total previous report..\$112,053 59

SCHEDULE D.

Statement showing revenue from License Branch for the fiscal year ending 31st October, 1918.

Vendors' License Fees	\$45 00	Seized Liquor	\$12,532 49
Standard Hotel Fees	1,000 00	Sundries	25 18
Fines	200,106 77		
		Total	\$213,709 44

Total previous report..\$192,531 84

SCHEDULE E.

Showing fines imposed under the Ontario Temperance Act, paid to the Municipalities where special officers have been appointed under Sec. 120 of the Ontario Temperance Act for license year 1917-18, and for year ending 31st Oct., 1918, respectively.

	To 30th April, 1918.	To 31st Oct., 1918.		To 30th April, 1918.	To 31st Oct., 1918.
Amherstburg	\$225 00	\$120 00	Galt	2,870 00	1,860 00
Arnprior	290 00	320 00	Guelph	1,240 00	820 00
Aylmer	726 50	134 00	Gananoque	790 00	265 00
Acton .....	.....	20 00	Georgetown	177 40	26 75
Ailsa Craig .....	.....	200 00	Gravenhurst	80 00	.....
Brantford	7,260 00	6,560 00	Hamilton	23,610 00	26,450 00
Bancroft	60 00	10 00	Hespeler	390 00	70 00
Bowmanville	230 00	165 00	Hagersville .....	.....	.....
Brighton V. ....	.....	.....	Haileybury	440 00	270 00
Brockville	1,416	1,322 00	Hanover	279 45	59 45
Blenheim	10 00	.....	Hawkesbury	916 23	663 70
Belleville	2,960 10	3,949 40	Hastings V. ....	.....	.....
Bradford	50 00	10 00	Hepworth .....	.....	.....
Blind River	860 00	540 00	Humberstone .....	.....	.....
Burlington	1,048 45	599 45	Huntsville	50 00	50 00
Burk's Falls	20 00	10 00	Ingersoll	520 00	490 00
Bridgeburg	330 00	845 00	Iroquois Falls ....	.....	.....
Barrie	549 00	545 00	James Twp. ....	.....	10 00
Blanford .....	.....	.....	Kenora	490 00	540 00
Bayham .....	.....	.....	Kincardine Tn.	430 00	655 00
Bothwell .....	.....	.....	Kitchener	3,556 00	1,857 50
Cobourg	300 00	140 00	Kingston City	1,520 00	2,045 00
Colborne .....	.....	.....	Kingston Twp. ....	.....	.....
Carleton Place	106 25	70 75	Kent County	4,525 00	5,195 00
Cobalt	3,160 00	2,635 00	Keewatin .....	.....	210 00
Cochrane	2,014 50	2,286 00	Leamington	220 00	305 00
Courtwright	275 00	614 50	Lucknow	210 00	210 00
Copper Cliff	5,290 00	6,340 00	London	11,830 00	11,910 00
Chapleau	260 00	220 00	Lucan	165 00	75 00
Campbellford	75 65	24 95	Lanark V.	10 00	10 00
Chesley	720 00	.....	Lakefield	10 00	.....
Cardinal .....	.....	.....	Lindsay	350 00	460 00
Charlton .....	.....	.....	McDougall Tp.	895 00	975 00
Coldwater .....	.....	.....	Mattawa	280 00	134 38
Cornwall	355 00	295 00	Midland	1,926 50	1,540 00
Cayuga .....	.....	.....	Madoc	547 00	155 00
Collingwood Tn. ...	500 00	500 00	Massey .....	.....	.....
Cannington	40 00	.....	Merritton	230 00	230 00
Chatham	1,825 00	1,725 00	Meaford	30 00	10 00
Clifford	10 00	.....	Matheson .....	.....	.....
Crowland Tp.	6,865 00	10,735 00	Milton .....	.....	.....
Dunnville	20 00	250 00	North Bay	285 00	370 00
Dresden	430 00	20 00	Niagara Falls	10,475 00	27,595 00
Dutton .....	.....	.....	Napanee	350 00	640 00
Drury, Denison and	.....	.....	Niagara Tn.	150 00	290 00
Graham	1,575 00	580 00	New Liskeard	245 00	30 00
Dundas Tn.	1,220 00	1,875 00	Nepean Tp.	20 00	20 00
Dryden .....	.....	600 00	Neustadt .....	.....	.....
Eastview	390 00	140 00	Neelon & Garson ..	1,350 00	2,080 00
Englehart	310 00	300 00	Norwood .....	.....	.....
Elmira	35 00	20 00	Newmarket .....	.....	.....
Edwardsburg .....	.....	.....	North Norwich ....	.....	.....
Elora .....	.....	.....	Norwich V.	255 00	210 00
Fort William	8,995 50	7,926 00	Ottawa	13,974 00	16,554 00
Ford City	780 00	860 00	Orangeville	51 85	49 00
Fort Erie	80 00	290 00	Oshawa	1,688 95	2,663 95
Fort Frances .....	.....	25 00	Oakland Tp. ....	.....	.....

SCHEDULE E.—Continued.

	To 30th April, 1918.	To 31st Oct., 1918.		To 30th April, 1918.	To 31st Oct., 1918.
Owen Sound	353 00	90 00	St. Catharines	3,600 65	4,661 70
Oxford West Tp...	70 00	60 00	St. Thomas	2,740 00	1,640 00
Oakville		690 00	Smith's Falls	1,610 00	2,410 00
Port Arthur	10,290 00	8,920 00	Stratford	4,040 00	1,670 00
Preston	1,060 00	470 00	Simcoe	275 00	215 00
Pictou	710 00	300 00	St. Vincent		
Pakenham			Sandwich	330 00	80 00
Paris	410 00	640 00	Sherbrooke Tp.		
Parry Sound	4,434 00	3,259 25	Sioux Lookout	200 00	200 00
Port Hope	115 00	50 00	St. Mary's	270 00	50 00
Peterboro	2,840 00	2,170 00	South Norwich		
Pembroke	2,020 00	2,400 00	Toronto	76,320 00	73,080 00
Petrolia	570 00	300 00	Tillsonburg	415 75	96 50
Perth	140 00	60 00	Trenton	3,671 00	3,634 00
Portsmouth			Tisdale Tp.		
Port Perry	90 00		Timmins	8,130 00	9,777 00
Port Stanley	485 00	160 00	Thamesville	220 00	60 00
Prescott	546 25	486 95	Thessalon	550 00	451 00
Parkhill	10 00	35 00	Thorold Tn.	4,030 00	3,020 00
Paisley			Tavistock		
Port Colborne	5,893 00	5,596 00	Thorold Tp.	1,225 00	1,869 50
Port Rowan			Vankleek Hill	40 00	600 00
Point Edward			Woodstock	1,195 00	410 00
Penetanguishene ..	1,425 00	1,375 00	Walkerville	1,255 00	710 00
Port McNicoll	941 50	430 00	Woodhouse		
Pelee Tp.		200 00	Wallaceburg	955 00	1,095 00
Renfrew	2,225	580 00	Warton	90 00	57 50
Rainy River Tn....			Welland Tn.	7,010 00	8,975 00
Rayside Tp.			Windsor	10,896 35	7,192 35
Ridgetown			Walkerton	250 00	250 00
Sault Ste. Marie...	10,922 61	11,193 91	Waterloo	270 00	270 00
Sturgeon Falls	150 00	90 00	West Zorra	220 00	235 00
Sarnia	6,376 00	3,176 00	Whitby Tn.	30 00	93 00
Steeltown					
Sudbury	13,915 00	12,495 00	Total	\$338,228 54	\$332,629 54

SCHEDULE F.

Showing the number of Standard Hotels licensed under Section 146 in each License District at date of this Report.

Algoma	13	Ottawa City	23
Brant	16	Oxford	22
Bruce	42	Parry Sound	18
Carleton	9	Peterborough East	7
Dufferin and Simcoe South	22	Peterborough West	19
Dundas	12	Prescott	22
Elgin	26	Prince Edward and Hastings S. (in-	
Essex (excluding Windsor)	8	cluding Belleville)	24
Frontenac	29	Rainy River	9
Grenville	9	Renfrew	38
Grey	38	Russell	21
Guelph and Wellington S.	21	Sault Ste. Marie	5
Halton	13	Simcoe N. and Muskoka	69
Hamilton City	44	Stormont and Glengarry	19
Hastings North	19	Stratford City	9
Kenora	9	Sudbury	16
Kent	24	Temiskaming	15
Lambton East	12	Thunder Bay (including Fort Wil-	
Lambton West	15	liam and Port Arthur)	16
Lanark	18	Toronto City	98
Leeds	22	Victoria and Haliburton	23
Lennox and Addington	17	Waterloo	57
Lincoln	20	Welland (including all but River	
Middlesex (including London)	41	municipalities)	9
Niagara Falls (including River		Wellington North	13
municipalities)	19	Wentworth	13
Nipissing	16	Windsor	20
Norfolk and Haldimand	35	York	36
Northumberland and Durham	39		
Ontario	21		1,250

SCHEDULE "G"—LICENSE INSPECTORS.

License District.	Inspector.	P. O. Address.
Algoma	Jas Grigg	Bruce Mines.
Brant and Haldimand	R. J. Eacrett	Brantford.
Bruce	J. M. White	Walkerton.
Carleton	Howard Graham	44 3rd Avenue, Ottawa.
Dufferin and part Co. Simcoe	T. J. Robinson	Orangeville.
Dundas and Stormont	E. P. Foster	Morrisburg.
Elgin, including St. Thomas.	Walter Ross	St. Thomas.
Essex	J. E. Stone	Essex.
Frontenac, including Kingston	Wm. McCammon	Kingston.
Glengarry	A. McDonald	Alexandria.
Grenville	A. Carson	Box 213, Prescott.
Grey	M. C. Beckett	Owen Sound.
Guelph, including part Co.		
Wellington	Jas. O'Brien	Guelph.
Halton	John Harvey	Acton.
Hamilton, including part Co.		
Wentworth	Jas. Sturdy	Hamilton.
Hastings	Jno. Stokes	Tweed.
Huron North (Canada Temp.		
Act)	J. J. Mitchell	Wingham.
Huron South (Canada Temp.		
Act)	Jno. Torrance	Clinton.
Kent	T. M. French	Chatham.
Kenora	T. Dougherty	Kenora.
Lambton, East	Wm. Culbert	Wyoming.
Lambton, West, including		
Sarnia	Geo. Lucas	Sarnia.
Lanark	J. J. McGregor	Carleton Place.
Leeds, including Brockville ..	F. B. Taber	Brockville.
Lennox and Addington	W. S. Exley	Napanee.
Addington	J. McL. Wheeler, Prov. Officer	Tamworth.
Lincoln, including St. Cath-		
arines	J. W. King	St. Catharines.
Manitoulin (Canada Temp.		
Act)	Wm. Vincer	Mindemoya.
Middlesex, including London	J. E. Keenleyside	London.
Nipissing	L. P. Didier	North Bay.
Niagara Falls, including part		
Co. Welland	T. E. Ferris	Niagara Falls.
Norfolk	R. Edmonds	Simcoe.
Northumberland and Durham	G. Goodrich	Cobourg.
Ontario	L. R. Luke	Oshawa.
Ottawa, including Eastview..	J. C. Enright	Ottawa.
Oxford, including Woodstock	W. Shaver	Woodstock.
Parry Sound	W. J. White	Novar.
Peel (Canada Temp. Act) ..	J. D. Orr	Meadowvale.
Perth (Can. Temp. Act), in-		
cluding Stratford (Ontario		
Temp. Act)	F. E. Elliott	Stratford.
Peterboro	Jos. Stewart	Peterboro.
Peterboro East	Elias Williams, Prov. Officer	Havelock.
Port Arthur & Fort William	A. R. Elliott	Port Arthur.
Prescott	Jos. Lemieux	L'Original.
Prince Edward, including		
part Co. Hastings and		
Belleville	R. C. Arnott	Belleville.
Rainy River	Geo. Campbell	Fort Frances.
Renfrew	Jno. Connolly	Renfrew.
Russell	W. M. Russell	Cumberland.
Sault Ste. Marie	W. R. Cunningham	Sault Ste Marie.
Simcoe and Muskoka	W. Fisher	Orillia.

SCHEDULE G.—Continued.

License District.	Inspector.	P. O. Address.
Sudbury	T. N. Kilpatrick	Sudbury.
Temiskaming	W. S. Blackwall	Haileybury.
Toronto	E. H. Lewis	Toronto.
Toronto	A. A. Montgomery	Toronto.
Victoria and Haliburton	Wm. Thornbury	Lindsay.
Waterloo, including Kitch- ener and Galt	J. Winterhalt	Kitchener.
Welland	Geo. A. Ekins	Welland.
Wellington	Jno. Gordon	Drayton.
Wentworth	James Sturdy	Hamilton.
Windsor	M. N. Mousseau	Windsor.
York	D. McKenzie	Woodbridge.

Ontario Department of Agriculture

REPORT

OF THE

Minister of Agriculture

PROVINCE OF ONTARIO

FOR THE YEAR ENDING
OCTOBER 31, 1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1919

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REPORT
OF THE
Minister of Agriculture
PROVINCE OF ONTARIO
1918

I have the honour to submit the Annual Report of the Department for the year ending October 31, 1918.

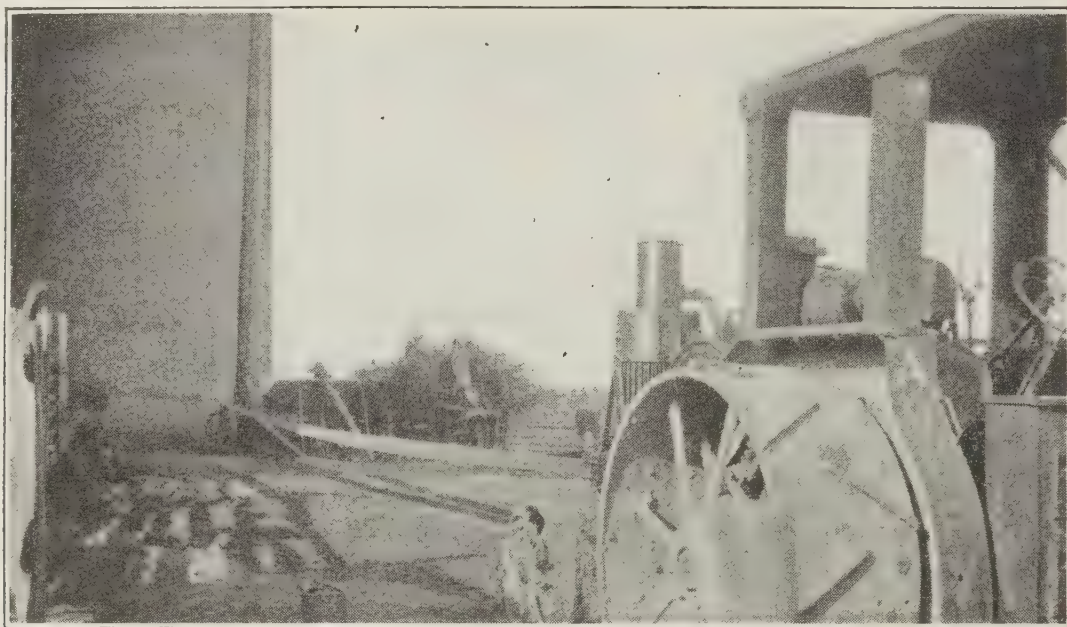
The record of the year from the agricultural standpoint is a record of practically the best year in the history of the Province. Proving to be the last year of actual hostilities it seemed as though all agencies combined to bring about the maximum possible production of necessary foodstuffs. The result is shown in the statistics published in detail under separate cover which has been scarcely equalled in the records of the Province. It is only necessary here to recall a few of the outstanding facts in connection with these figures. The total acreage under crop exceeded the ten million mark, which was the highest figure in the history of the Province. Taking the four years under war conditions and comparing them with the four years immediately preceding it is found that a total of slightly over 560,000 more acres were cropped in the war period than in the previous period. When it is recalled that the farmers of the Province worked under great handicaps in connection with the shortage of labor this must be recognized as a very substantial achievement. Not only is this the case but in the past year Nature seemed to favor all the efforts of those who were working for the maximum production, consequently record yields may be reported in spring wheat at 23.3 bus. oats at 45.1, and barley at 36.7 bus. per acre. This is an indication of favorable climatic conditions but is also a proof of the continued fertility of Ontario farms. The whole result constitutes a fitting climax to the efforts put forward in this Province to maintain the highest production to meet war needs, and the whole effect cannot help but contribute to the stability of financial as well as agricultural conditions in this Province.

WORK OF THE DEPARTMENT

The work of the Department was well maintained during the year, every effort being made to keep prominent the great object in view. The Department endeavored to keep before the people constantly and insistently a clear statement of the needs and at the same time endeavored to extend practical assistance to the men on the land in meeting these needs. In assisting in securing and distributing labor, in operating tractors, in the extension of the arrangement for making of loans for seed purposes, in the organization for backyard gardening and vacant lot cultivation, in publicity work through farm papers and in the general use of motion pictures a continuous effort was made to lead and co-operate in increased production. More details of these efforts are recorded in other parts of the report outlining the general work of the various Branches of the Department.

FEDERAL GRANT

The special grant for agricultural, educational and demonstration work which is received from the Federal Government each year has very materially supplemented the ever increasing appropriations made by the Province itself. The following gives a statement of the purposes and apportionment made by agreement with the Federal Minister:



Using the tractor for silo filling.

AGRICULTURAL COLLEGES AND SCHOOLS.

1. Ontario Agricultural College:			
(a) Buildings, equipment and furnishings	\$135,000	00	
(b) Salaries and expenses, additions to staff; maintenance	15,000	00	
			\$150,000 00
2. Agricultural School and Farm:			
(a) Capital expenditure	\$60,000	00	
(b) Maintenance, purchase of stock, machinery, repairs, services, expenses and equipment	20,000	00	
			80,000 00

INSTRUCTION AND DEMONSTRATION.

3. District Representatives, including clerical and other assistance in connection with the administration	20,000	00
4. Extension work in household science in rural communities	2,000	00
5. Co-operation and markets, educational work in connection with the marketing of farm products, including organization of co-operative societies.....	7,000	00
6. Demonstration and instruction in vegetable growing	7,000	00
7. Stock and Seed Judging Short Courses and Institute Lectures.....	2,503	26
8. Women's Institute Work, including courses in cooking, sewing, etc.....	5,000	00
9. O.A.C. Short Courses for winners of Acre Profit and Live Stock Competitions, including travelling and living expenses	2,000	00
10. Lectures on horticulture	500	00
11. Demonstrations in growing and handling fruit	2,000	00
12. Demonstrations with vegetables and hardy fruits in New Ontario.....	4,500	00
13. Vineland Horticultural Experiment Station, experimental work.....	2,000	00
14. Drainage work	2,500	00
15. Demonstration work on soils	4,000	00
16. Beekeeping.....	500	00
17. Instruction and special educational work in growing and handling corn.	3,000	00
18. Instruction and demonstration with live stock and poultry	2,000	00

ELEMENTARY AGRICULTURAL EDUCATION.

19. To provide for and to encourage the teaching of agriculture, manual training as applied to work on the farm, and domestic science in High, Public, Separate and Continuation Schools, and in Universities, to be available for grants, services, expenses and equipment, and travelling and living expenses of teachers, inspectors and others in attendance at Short Courses or other educational gatherings, and to be paid out on the recommendation of the Department of Education.....	40,000 00
	<hr/> \$336,303 26

KEMPTVILLE AGRICULTURAL SCHOOL

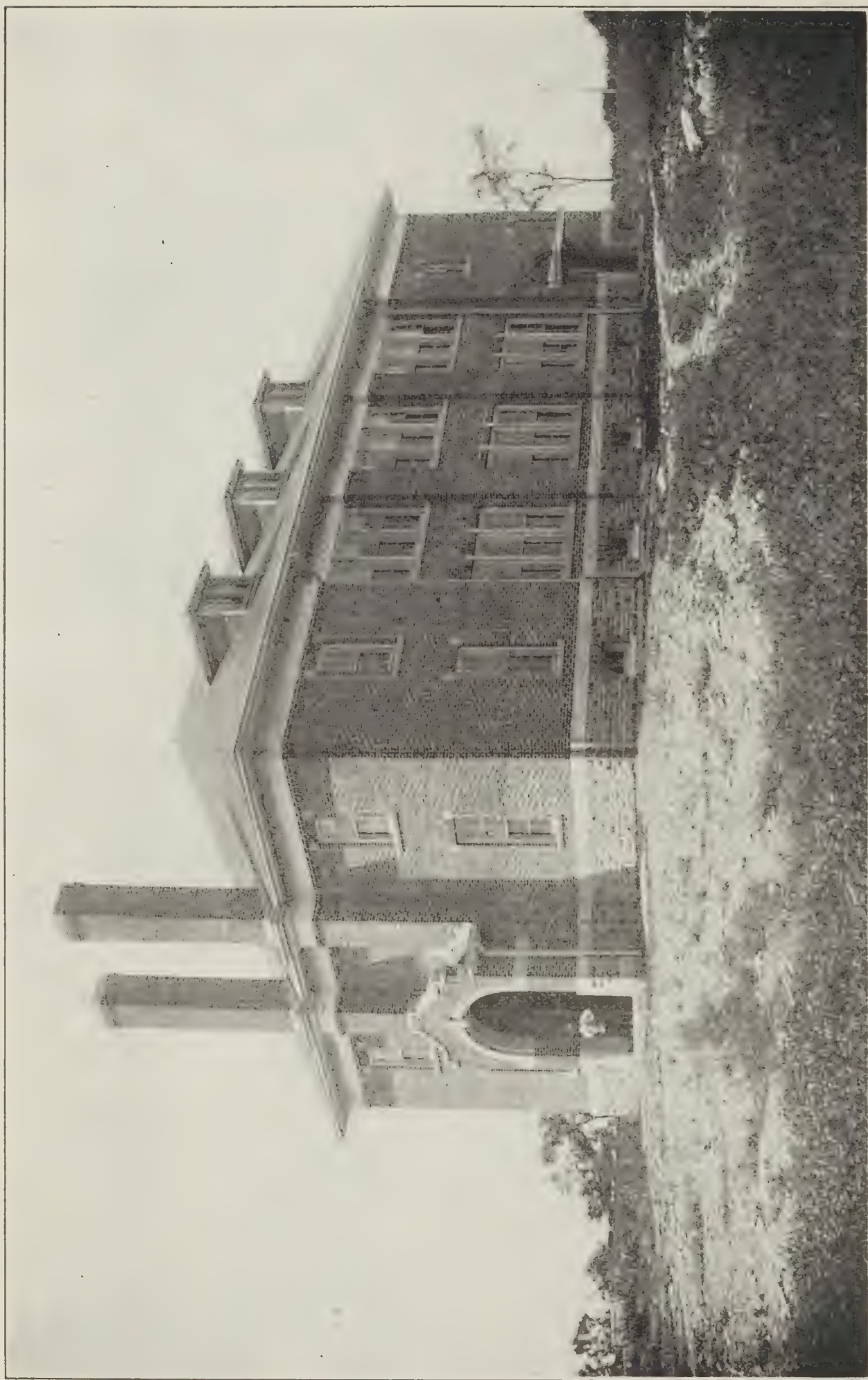
The plans in connection with the establishment of an Agricultural School and farm to serve Eastern Ontario with headquarters at Kemptville were forwarded during the year. While it was recognized that buildings could not be proceeded with to the full extent under war conditions a start was made. The farm buildings such as horse barn, sheep pen and piggery were completed, and some of the other buildings overhauled and improved. The main new building erected was the live stock judging pavilion 85 ft. x 51ft. in size and two stories high, the top storey containing a large lecture hall. On the ground floor is a spacious live stock judging arena. This building has been used for Short Courses and special gatherings and has proven very satisfactory for this purpose. Now that the war is over it is probable that work will proceed with the erection of the main administration and classroom building for school purposes proper.

FARM WORK. In the meantime the farm is being worked into good shape to serve as far as possible as a demonstration and be of assistance in instructional purposes. One of the first jobs necessary was the cleaning up of certain weeds which were found, including twitch grass, bladder campion and king devil. and a statement of the methods which were used for the eradication of twitch grass and which proved very effective, may be of interest.

Twelve acres that had been in grass for eleven years and full of twitch was disked with a double cut-away shortly after a crop of hay was harvested. The disk was followed with a spring tooth cultivator, the object of the disking being to break the surface sufficiently to allow the cultivator to get below the surface. The cultivator was kept going regularly until late in October, when the field was shallowly ploughed. After careful spring cultivation eight acres were planted with corn in hills while the remaining four acres were used for mangels. Both corn and mangels were thoroughly cultivated during the earlier part of the season and very little if any twitch was left.

A field of eight acres badly infested with twitch grass was pastured until July and then ploughed. Eight acres of the field was summer fallowed and later seeded with winter rye. Rape was sowed in drills in the remaining four acres and used for sheep pasture three weeks before the breeding season, and for finishing spring lambs for market. The rape was cultivated and just before winter set in the top of each drill was turned flat with a plough to give it an opportunity to kill any twitch that might be left. The area seeded with rye will be used for early spring pasture, then ploughed, cultivated and with the rape land planted with corn in hills.

A six acre field that had also been left in grass for some time and as a result was very badly infested with twitch grass was ploughed immediately after the crop of hay was harvested. The double cut-away disk was used to cut up the sod and the spring tooth cultivator and drag harrows were kept busy until frost came



New Stock Judging Arena at Kemptville Agricultural School.

and until the field was planted to potatoes June 14th and 15th the following spring. There is no twitch left in this field.

Any of these four methods of eradicating this troublesome weed have proven successful with our conditions and soil—a sandy loam. Early and thorough cultivation, being careful to keep all roots at or close to the surface, followed by a crop that will admit of continued cultivation through the hot and dry season seems all that is required to banish twitch from the soil. A short rotation of crops should keep it out.

The crops grown during the season were very satisfactory and as a result the farm was able to distribute, at moderate prices, quantities of registered seed of the best varieties, for the use of farmers in the district.

Along with the improvement of the farm has been an effort to assemble and develop a creditable equipment in live stock. In order to satisfy as to the standards being attained in this regard several of the animals were exhibited at convenient and important shows. The result was the winning of a number of prizes by horses, cattle, hogs and sheep. This is a satisfactory proof that a high standard is being attained in the quality of stock assembled, and it will prove of much value both for instruction purposes and in the improvement of the live stock in the neighborhood.

EDUCATIONAL WORK. While the School was not in a position to announce classes in the regular way, some important Short Courses were held. A Farmers' Week was arranged for, and as the Ottawa Winter Fair was cancelled, the Eastern Ontario Seed Fair was conducted at the School in connection with this Farmers' Week. There were three sessions each day and an average attendance of over 200 was recorded, with some larger gatherings at special times. These Short Courses will be maintained and extended until the School is in a position to open its doors to regular classes.

STANDARDIZING POTATO INDUSTRY

With a view to placing the potato industry of the province on a better basis the special work inaugurated a year ago was continued vigorously. The work proceeded along two definite lines, distribution of better seed and control of diseases. As sufficient New Ontario seed was not available a considerable quantity was brought in from New Brunswick, the Department placing the buyer in touch with the seller. In all 4,418 bags were handled in this way; the varieties of course being confined to Irish Cobbler for early, and Green Mountain and Rural type for late, the varieties approved by the Potato Advisory Council. Unfortunately all this seed did not prove to be free from disease. During the season all the potato growing districts were visited and 26 meetings held, with a total attendance of 590. At the same time a survey was made for disease and it was found that commercial potato growing districts were affected with leaf curl to the extent of 15 per cent. and mosaic to the extent of 7 per cent. Steps were taken to have available a good supply of disease free seed of the standard varieties for 1919 planting. In addition to the good potato growing districts of old Ontario being supplied there will be fourteen carloads available for old Ontario.

Despite the fact that Ontario produces annually approximately one quarter of all the potatoes in Canada, the Province has never had the reputation of being a specialized growing district. Because of this there is a current belief that our potato growing districts do not lend themselves to up-to-date methods of grading, shipping and selling as do some specialized outside potato districts.

In order to arrive at the truth of the matter a survey of the developed commercial potato producing districts of Ontario was made with the co-operation of the Agricultural Representatives. Those districts by nature especially adapted to potato production but not at present commercially developed were also included in the survey. The data thus far secured shows 39 districts which at present commercialize in potato production.

Commercially Developed Districts.

Carleton County.—Bowesville District (parts of Osgoode, Gloucester, and Nepean Townships).

Dundas.—Mountain Township (sections adjacent to Hallville and Read's Mills).

Matilda Township (western part adjacent to Hainesville and Glen Stewart).

Grenville.—Edwardsburg Township (portions adjacent to and between Cardinal and Spencerville).

Oxford Township (section adjacent to Kemptville, extending to Mountain Township, Dundas County).

Renfrew.—Districts adjacent to Renfrew, Beachburg, Pembroke, Arnprior, Burnstown and Killaloe (3,000 acres grown annually—county well adapted to potatoes generally).

Russell.—District north of Russell.

Hastings.—Districts adjacent to Bronson and Coe Hill.

Stormont.—Districts adjacent to Crysler.

Prince Edward.—District adjacent to Picton and along Bay Shore.

Northumberland.—Southern part of Brighton Township and to lesser extent in region of Cobourg.

Durham.—Manvers Township, centered in district surrounding Pontypool.

Ontario.—District adjacent to and between Zephyr and Uxbridge.

York.—District surrounding Mt. Albert and between Mt. Albert and Zephyr.

District surrounding Toronto—largely vegetable growers—early potato.

Peel.—Caledon Township (centered to North and West of Caledon).

Albion Township (districts adjacent to Palgrave and Mono Mills).

Dufferin.—District adjacent to Orangeville uniting with Caledon district, Peel County.

Halton.—Western fringe of County around Kilbride and Lowville extending into Wentworth County.

Wentworth.—East and West Flamboro Townships.

Ancaster Township.

Hamilton district—early potatoes principally.

Wellington.—Erin Township centered around Hillsburg and Erin.

Brant.—Districts south of Paris and adjacent to Burford and Mt. Pleasant.

Early potatoes grown in vicinity of Brantford.

Norfolk.—Most of all county well adapted to industry and large acreage produced—centered in Simcoe district.

Middlesex.—North half of Caradoc Township centered in Mt. Brydges and Strathroy districts.

Elgin.—Districts adjacent to Rodney, West Lorne and Union.

Kent.—Early potatoes grown extensively along Erie Ridge from Ridgetown to Cedar Springs and below ridge in vicinity of Mull.

In northern part of Chatham Township in vicinity of Tupperville.

Essex.—Early potatoes grown along lake shore from Leamington to Ruthven to Harrow, bulk in Leamington district.

Lambton.—Early potatoes grown along St. Clair shore from Sarnia to Blackwell.

Simcoe.—One of the largest producing counties, particularly special districts not yet defined.

Grey.—District adjacent to Owen Sound.

Bruce.—Districts surrounding Hepworth, Kincardine and Lion's Head.

Peterborough.—District in vicinity and south of Peterborough.

Thunder Bay.—Murillo, Oliver and Dorion Townships.

Rainy River.—District along river from Emo to Fort Frances.

Kenora.—District adjacent to Dryden.

Of these districts those in the following counties and districts have been personally visited by the Potato Specialist, growers interviewed and excellent meetings held:

Carleton, Dundas, Grenville, Durham, Ontario, Wellington, Middlesex, Kent, Essex, Lambton, Thunder Bay, Rainy River, Kenora, Algoma.

In these specialized districts extension work has been concentrated and will continue to be in the future.

Seven other Districts have been found adapted to potato growing but are not yet developed.

Victoria County.—Middle and Northern part Emily Township.
Somerville Township along Burnt River.

Peel.—From Streetsville to Norval along Credit River.

Frontenac.—Townships of Hinchinbrooke, Bedford and Olden.

Wellington.—Puslinch Township.

Leeds.—Districts adjacent to Elgin, Athens and Bellamys.

Welland.—Northern part of Pelham and Stamford Townships.

ONTARIO AGRICULTURAL COLLEGE

After the effect of the war during the past few years the attendance begins to show an increase again. Although the armistice was not signed at the time of the opening, a number of men returning applied for admission, and this continued all through the fall when it was seen that the war was practically over. The following figures show the attendance in each course and indicate, particularly that the Short Courses have been well maintained even under war conditions:—

General Course	315	
Specialists in General Course Work	5	
Manual Training (One Year Normal Course)	8	
Dairy Courses	61	
Stock and Seed Judging	137	
Poultry Raising	31	
Horticulture Courses	57	
Apiculture	30	
Drainage and Drainage Surveying	13	
Farm Power	154	
Farmerette Course	31	
	—	842
Domestic Science (at Macdonald Institute)		379
Summer Courses—High School—First Year, 31; second year, 9; third year, 9..	49	
Public School teachers, first year	191	
Public School teachers, second year	124	
School for Rural Leadership	49	
Farm Mechanics	10	
Course for School Inspectors	78	
	—	501
Total		1,722

ANALYSIS OF COLLEGE ROLL (GENERAL COURSE), 1918

From Ontario.

Brant	5	Huron	3	Perth	7
Bruce	3	Kent	3	Prescott	1
Carleton	21	Lambton	8	Prince Edward	4
Dufferin	4	Lanark	5	Rainy River	1
Dundas	2	Leeds	4	Renfrew	3
Durham	4	Lennox & Addington..	3	Russell	2
Elgin	4	Lincoln	5	Simcoe	7
Essex	8	Middlesex	16	Stormont	1
Frontenac	4	Muskoka	4	Thunder Bay	2
Glengarry	3	Nipissing	1	Victoria	3
Grenville	4	Norfolk	4	Waterloo	10
Grey	5	Northumberland	3	Welland	5
Haldimand	4	Ontario	9	Wellington	24
Halton	3	Oxford	9	Wentworth	11
Hastings	4	Parry Sound	1	York	32
Leeds	3	Peel	5		

Total from Ontario—278

From Other Provinces of the Dominion.

Alberta	1	New Brunswick	3	Prince Edward Island	6
British Columbia	6	Nova Scotia	6	Saskatchewan	1

Total from other
Provinces

From Other Countries.

Argentine Rep.	1	England	2	U.S.A.	7
B.W.I.	1	Scotland	1	U.S. of Colombia	2

Total from other
Provinces

Ages and Religious Denominations.

The limits of age in the General Course, 1918, ranged from 17 to 46 years. The average age was 21.

Anglican	51	Friends	3	No Religion	6
Arminian Christian ...	1	Gospel Tabernacle	1	Presbyterial	95
Baptist	25	Hebrew	2	Roman Catholic	14
Christadelphian	1	Lutheran	6	United Brethren	2
Congregational	2	Mennonite	3	Universalist	1
		Methodist	103	Unitarian	1

WOMEN ADMITTED TO THE COLLEGE

An important change has been made in the regulations regarding admission to the College. Heretofore the regular courses have been open only to boys. In view of the extent to which women were called upon to assist on the land under war conditions it was thought desirable to establish a Short Course for those who desired to have special training before undertaking this work. The result was most encouraging. Altogether 31 attended this course, which continued for three months and included both instruction and practical work in all lines of farm activity. The class took hold of their duties with so much energy and determination that the possibilities of future work along this line were evident. It was therefore decided that the regular courses should be open to women on the same basis as men, and four entered at the opening of the term with the intention of continuing their studies until they secure the B.S.A. degree. Whether the demand from women for this course is very large or not, the innovation will no doubt be followed with much interest.

VICTORY AT CHICAGO

The 1918 Stock Judging Team has brought further honors to the College by the winning of the much-sought-after trophy at the International Live Stock Show at Chicago. The boys were thoroughly trained for the competition and their victory was a popular one with the students and throughout the Province generally as it is several years now since the trophy was won by this institution. The following is the list of those comprising the team and of the winnings:—

R. E. Begg, Tiverton, Ont.	D. J. Matheson, Lucknow, Ont.
C. F. MacKenzie, Guelph, Ont.	W. C. Caldwell, Carp, Ont.
C. Lamont, Mount Brydges, Ont.	

WINNINGS.

	Points.
1st in aggregate score judging all classes. Winners of the bronze bull and the bronze medal	3,865
R. E. Begg, high man in aggregate score, second in sheep and second in swine..	801
Winner of the gold medal and the blue ribbon and five shares of stock in the American Shropshire Association.	
C. F. MacKenzie, 1st in beef cattle and 3rd in swine and 3rd in grand aggregate score	791
Winner of the white ribbon.	
C. Lamont, 1st in swine, 4th in beef cattle and 5th in grand aggregate score	779
Winner of silver cup, for judging swine and the yellow ribbon.	
D. J. Matheson, 3rd in sheep, 6th in swine and 8th in grand aggregate score	768
Winner of five shares of stock in the American Shropshire Breeders' Association.	
W. C. Caldwell, 8th in horses, 8th in swine and 7th in sheep, 14th in grand aggregate score	726

ANNUAL COLLEGE SALE

A most successful sale of the surplus pure-bred stock of the College was held in the fall. These annual sales are proving very satisfactory from the standpoint of the College as well as from the standpoint of distributing pure-bred stock throughout the Province. With very few exceptions all the animals were bought for use in Ontario. Prices were fairly high but buyers got good value in the offering. The top price for the entire sale was \$950.00 paid by Carpenter & Ross, Mansfield, Ohio, for the year-old white heifer, Augusta O.A.C. 5th. Shorthorns sold well and sheep and swine met a ready demand. The following is a detailed statement of the sale returns:

4 Shorthorn bull calves brought	\$905 00	average \$226 22
4 Shorthorn females brought	2,850 00	average 712 50
2 Aberdeen-Angus bulls brought	315 00	average 157 50
5 Holstein bull calves brought	457 50	average 91 50
2 Ayrshire bull calves brought	120 00	average 60 00
3 Jersey bull calves brought	152 50	average 50 83
1 grade Shorthorn cow brought	175 50	
2 fat cattle (steer and heifer) brought	412 80	average 206 40
14 Shropshire sheep (ewes and rams) brought	537 50	average 38 39
1 Southdown ram lamb brought	22 50	
11 Oxford sheep (ewes and rams) brought	482 00	average 43 81
12 Leicester sheep (ewes and rams) brought	447 50	average 37 29
45 Yorkshires (many young pigs) brought	2,099 50	average 46 65
22 Berkshires (mostly very young) brought	537 50	average 24 43

The total for the sale was \$9,511.80.

This aggregate is very good considering that no dual purpose Shorthorns were offered this year and that no female stock from the dairy herd was sold. Most of the pigs were young and altogether they sold well, while sheep made a good average.

LIVE STOCK WORK STRENGTHENED

Definite steps have been taken during the past year with a view to strengthening the live stock department, particularly with reference to equipment. Good individuals of several different breeds have been purchased with a view to both breeding and class-room purposes. The College now has a good representation of the three leading beef breeds—Shorthorns, Aberdeen-Angus and Herefords. Further purchases have also been made of all the leading breeds of swine, and the dairy herd has been strengthened by the purchase of several Holstein, Ayrshire and Jersey cows. The dual purpose Shorthorns which have been carried at the College for the past few years have been transferred to the Monteith Demonstration Farm to strengthen the work being carried on there. The Bang system of treating for tuberculosis, which has been in use at the College for some years past, is now being discontinued, and in future all reactors will be slaughtered.

DEVELOPING A NEW WINTER WHEAT

In the field husbandry department of the College a great deal of useful experimental work has been carried on with different varieties of seed. One of the most important matters in hand at the present time is the development of a new variety of winter wheat known as O.A.C. No. 104. This was originated at the College and was distributed to farmers for co-operative experiments for the first time in the fall of 1916 after having been tested on the experimental plots at the College for a period of five years. The results continue to be most encouraging

and indicate that a valuable variety is being developed. It is not yet available in large quantities, but some seed may be obtainable from experimenters next fall. It may be of interest to quote the record of development of this seed as related by the Professor of Field Husbandry.

In the summer of 1881 Robert Dawson, a farmer living near Paris, Ontario, had a promising field of the White Clawson variety of winter wheat. A very heavy storm caused the grain on this field to become badly lodged. Mr. Dawson while walking over the field of grain which had been flattened and partly beaten into the ground found one plant, the stems of which were mostly standing. He thought that possibly as this plant was more erect than others it might be due to an unusually stiff straw. As the grain was ripening at the time he carefully saved the heads from this single plant. These were shelled by hand and the grains were sown in a little piece of ground near the house in the following autumn. As the growth was promising Mr. Dawson was soon enabled to increase the crop sufficiently to not only supply his own requirements but also to sell seed to his neighbors. A bag of the new wheat, under the name of Dawson's Golden Chaff, was entered at the Autumn Seed Fair at Guelph and received first prize. It was tested in the experimental plots at the Ontario Agricultural College and proved to be one of the stiffest strawed and most productive varieties under test. It was later distributed to farmers over Ontario through the medium of the Ontario Agricultural and Experimental Union. It was increased in various localities and has for a number of years past been the most popular and most extensively grown winter wheat in Ontario. It has a stiff straw, a red beardless head and a white grain. Although the Dawson's Golden Chaff is a heavy yielder, the grain is comparatively soft and is more suitable for the manufacture of pastry and of breakfast foods than of flour for manufacturing into bread.

Another important variety of winter wheat known as the Bulgarian has been under test at the College for many years. It is also a white wheat but with a medium strength of straw and a medium yield of grain per acre. This variety, however, has made a high record for bread production as shown by tests in the Bakery Department at the College. It was thought that if the Dawson's Golden Chaff and the Bulgarian varieties could be cross-fertilized and a new variety originated, eliminating the undesirable and retaining the most desirable characteristics of the two parents, a very valuable acquisition might be made to agriculture.

A complete flower consists of two essential parts, the stamen and the pistil, and two floral envelopes, the corolla and the calyx. The two former contain the organs of reproduction and the two latter give the brilliancy and the beauty to the flower. Either the corolla or calyx or both may be absent, in which case the flower is said to be incomplete. It is usual for the stamens and the pistil to be in the same flower. Sometimes they occupy separate flowers on the same plants and occasionally the stamens are produced on one plant and the pistils on another. In the case of wheat both the stamens and the pistil are found in the same flower. In each flower there are three stamens and one pistil. The stamens contain the pollen grains which are small, uniform and yellow in color, and the pistil the egg cells. For reproduction to take place it is essential that each egg cell be fertilized from a pollen grain.

Some of the farm crops such as wheat, barley, oats, peas and beans are naturally self-fertilized owing to the fact that fertilization takes place before the flowers are opened and exposed. In other instances, however, such as corn and rye, natural cross-fertilization takes place. This is clearly demonstrated in the case of corn.

Every silk emanating from an ear must receive a vital pollen grain before a kernel of corn can be produced. As the pollen grains are produced on the upper part of the plant and the ears of corn some distance below, the pollen is usually conveyed to the corn silks through the agency of the wind. This accounts for the frequent mixing of varieties when grown in near proximity to each other.

From what has been said it is evident that in order to secure hybrid grains of wheat it is necessary to artificially cross-fertilize the flowers. The O. A. C. No. 104 variety of winter wheat originated from a single cross between flowers of a choice plant of each of the Dawson's Golden Chaff and the Bulgarian varieties. Soon after a head of Bulgarian wheat appeared above the sheath a flower was carefully opened and the three immature stamens were removed. These were replaced by ripened anthers and pollen grains taken from a choice head of Dawson's Golden Chaff. In due time fertilization took place and a hybrid grain was produced. This grain in the course of a few years produced a great variety of plants possessing different combinations of the characteristics of the two parents. These were carefully studied and the one which received number 104 was found to possess in itself a combination of a number of the most desirable features of the two parent varieties.

For eight years in succession the O. A. C. No. 104 variety of winter wheat has been tested in the uniform plots with the other varieties. The following is the average results of the new hybrid wheat in comparison with each of its parents for the eight-year period.

Varieties.	Average result for eight years.		
	Weight per measured bush. (lbs.)	Yield per acre.	
		Straw (tons)	Grain (bus.)
O.A.C. No. 104.....	60.1	2.64	45.7
Dawson's Golden Chaff	58.4	2.29	42.4
Bulgarian	59.3	2.37	36.6

In the experiments at the College the O. A. C. No. 104 proved to be one of the hardiest varieties in the past year when so much damage was done by winter killing.

This wheat has been distributed throughout Ontario in connection with the co-operative experiments in each of the past three autumns. In each of the two years for which we have returns it has proven both productive and popular with the experimenters, surpassing in yield per acre the other varieties under test.

The O. A. C. No. 104 variety of winter wheat is a vigorous grower with a comparatively stiff straw. The grain is white and the head resembles the Dawson's Golden Chaff in being beardless, and the Bulgarian in having a white chaff. It is to be hoped that this offspring may prove of even greater service than either of its parents.

DRAINAGE WORK

In spite of the handicaps in connection with the scarcity of labor and the high price of tile, interest in drainage is well maintained and the demand on the staff of the College and the Department in general continues. The amount of

work done last year was only slightly less than the year before notwithstanding the factors mentioned. The following summary gives the record in connection with this important activity:—

Year	Appropriation	Applications	Surveys	Held Over	Acres Surveyed	Miles of Drain	Demonstrations	
							No.	Average Attendance
1906.....	\$ Nil	15	15	.....	500	45	.....	.....
1907.....	Nil	126	70	56	3,500	350	.....	.....
1908.....	1,000	166	100	66	5,000	510	43	.....
1909.....	1,000	302	179	121	5,157	613	48	18.0
1910.....	4,000	518	383	135	14,672	1,800	132	23.6
1911.....	4,000	414	327	87	15,211	1,864	142	17.4
1912.....	4,000	430	293	137	17,212	2,278	70	21.7
1913.....	4,000	290	247	43	13,705	1,713	56	20.3
1914.....	4,000	296	250	46	13,386	1,673	23	20.9
1915.....	4,000	291	263	28	15,336	1,917	8	12.8
1916.....	4,000	367	318	49	14,694	1,731	4	65.0
1917.....	4,000	343	255	88	11,988	1,489	.....	.....
1918.....	4,000	274	233	41	10,911	1,284	.....	.....
Totals.....	.....	.....	2,933	.....	141,272	17,247	526	.....

A questionnaire was sent out to quite a number of parties who had more than 30 acres surveyed, and 131 answers were received. Of those answering the question “Does drainage lessen winter injury,” 80 per cent. answered in the affirmative, of the other 20 per cent. 8 per cent. answered “No,” some did not know and some did not answer the question. In answer to the question, “What crops did drainage benefit most,” the majority of answers favored grain and root crops, and the single crop most frequently mentioned was corn. This may be partially due to the fact that quite a number of these answers were received from the corn growing district. In answer to the question, “How long did it take to pay for drainage?” which means how soon did the increased profits pay drainage, the average of the answers given was three years, while nine correspondents stated that the total cost of drainage was paid for due to the increase in the first crop. In all cases it was stated the tile was in good condition and some of the tile has been in for 30 years. In the majority of cases clay tile has been used. In the two dozen cases where concrete has been used all have been reported to be in good condition, but none of these systems where concrete has been used have been in many years.

Considering the whole 131 cases the average depth would be about 2¾ feet, the most shallow installation running 2 feet and the deepest about 3½ feet. Out of the 131 cases one answer was to the effect that the results were not very pronounced, all the others were good. One correspondent from Cottam says, “It does not pay to farm unless land is tile drained.” Another one from Monkton, Huron County, states, “Crops are doubled.” Another one from Ruthven, Essex County, states, “Land is easier worked.” Another one from Elmvale, Simcoe County, states, “All crops were benefited except frogs.”

From the information we have gathered regarding this matter of the value of drainage our correspondents appear to be all in favor of this work and some are not backward in lauding the benefits to be derived from drainage.

IMPORTANT POULTRY WORK

In connection with the work of the poultry department two important studies have been developed, one by which it is possible for a person of average intelligence to tell the high layers from the poor ones by merely examining the birds, and the other in the use of electric lights in increasing egg production. A demonstration of the plan of culling birds was given at the Toronto Exhibition and created a great deal of interest among poultry keepers. It will not of course take the place of trap nesting as far as the exact work is concerned, but for all practical purposes it is claimed that poultry keepers may learn to determine within a very narrow margin the laying capacity of the different birds in the flock. This matter is being followed up and demonstrations will be conducted in different parts of the Province to show the possibilities along this line.

In regard to the use of electric lights it may be noted that it has been known for some time that by lighting the pens during the short days more eggs were likely to be produced if the birds were well managed. Apparently many birds' crops are too small to hold enough food above that required for body maintenance so that a surplus remains for egg production. At this season of the year, December 4th, there is not much more than nine hours of time in which a hen can see to eat. Below is given a report of a few trials with birds of two different breeds and of several ages.

The lights are put on at dusk and maintained until nine o'clock. The last feed at night is given about eight o'clock. At this season of the year between four and five hours of artificial lighting is used.

EGGS PRODUCED FOR WEEK BEGINNING

—	Oct. 6	Oct. 13	Oct. 20	Oct. 27	Nov. 3	Nov. 10	Nov. 17	Nov. 24	Total
Pens 1 and 2—Lights, 50 April Hatched W. Leghorn pullets..	53	150	211	250	265	257	213	219	1,618
Pens 5 and 6—No Light, 50 April hatched W. Leghorn pullets..	14	74	133	174	179	190	185	143	1,092
Pen O—Lights, 30 yearling W. Leghorn hens	76	96	89	108	114	122	105	119	829
Pen 4—No Light, 30 yearling W. Leghorn hens	62	70	60	61	54	47	37	31	422
Pen A1—Light put on October 15th. 50 yearling Barred Rock hens.....		80	91	153	149	159	118	117	861
Pen 32—No Light, 50 yearling Barred Rock hens		85	75	87	79	69	68	78	541
A2 Pen—Light put on October 20th, 50 May hatched Barred Rock pullets.....			3	26	83	123	170	197	602
Pen 26—No Light, 50 May hatched Barred Rock pullets.....			10	10	9	19	43	60	151

The above table shows a marked increase in egg production from every pen. These trials have all been made with electric light. One ordinary light is used in a pen of twenty-five or thirty birds.

Elsewhere in the province very fair results have been secured from ordinary barn lanterns, gas, and gasoline lanterns. It takes about ten lanterns to light a house sixty feet by fourteen feet. One gasoline lantern does fairly well in a house twenty feet square.

One of the most interesting results from the use of lights was obtained from a pen of forty-one Leghorn hens in their fourth year of laying. The following is the total eggs laid by these hens for the month of November each year: 1915, 262 eggs; 1916, 88 eggs; 1917, 21 eggs; 1918, 426 eggs.

It may be interesting to many to know the yearly average production from these forty-one birds. It is as follows: first year—165 eggs each; second year—144 eggs each; and the third year 126 eggs each.

Taking the hens which produced 144 eggs or more during their pullet year, these same individuals represent practically 90 per cent. of best layers for the three years combined, or had we culled the flock at the end of their first year's laying, we would have missed four fairly good hens, or those that had laid more than 400 eggs in three years, and we would have included one bird which laid 397 eggs for three years, laying 152 in her first year; one which laid 328 eggs for the three years, laying 145 her first year; and also one bird which laid 285 during the three years, and 151 for the first year. The figures from these forty-one hens for three years' laying suggest that the first year's laying is a fair indication of what they will do in after years. The pullets hatched in May, 1915, were the poorest producers for the first year and are no better for the three years.

SOIL SURVEY

The soil survey, being conducted under the Chemistry Department has been continued during the past year and is now being advanced rapidly to the point where those in charge will be able in the near future to issue publications based on these careful studies of Ontario soils. The work carried on during the past year was confined to Eastern Ontario. The area covered extends fifty miles in length between the St. Lawrence and Ottawa Rivers, has an average width of twenty miles, takes in the county of Dundas with parts of Carleton and Russell, and includes seventeen types of soil. Owing to the diversified character of these soils a system of semi-detail mapping was followed instead of the usual preliminary method. The most important of these types are sandy loams and clay loams, for they are the best and most widely distributed; but these loams are variable and distinctly different in quality, so were mapped under five types. In addition there are considerable areas of fine sands and muck soils some of which are worth development, but many are of doubtful value. The muck soils of the area examined present many problems and constitute quite a study in themselves. During September one hundred and fifty samples of soils representing the seventeen types were taken. These will be submitted to physical and chemical analysis in order that we may give further information regarding similarities and differences among these various types. The application of lime alone has increased yields fifty to one hundred per cent. and the use of phosphate has increased yields from one hundred to four hundred per cent., or, to be more specific, the check plot in one experiment gave 10.67 bushels of wheat whereas the best phosphate plot, which was basic slag, gave 45.8 bushels. In another experiment the check plot gave 18.75 bushels and the best plot, which was again basic slag, gave 47.9 bushels. Another experiment on heavy clay soil still further showed the great advantage of phosphate manures in that where these fertilizers were used a good crop was harvested while all the rest of the field was winter killed. We were, however, unable to get yields. These experiments were so marked as to arouse a great deal of interest and inquiries of the Agricultural Representative in whose district the experiments were carried on.

INSECTS OF THE SEASON

The Entomological Department reports that the past summer was notable for the comparative absence of insect life. This is attributed to the extreme severity and long continuance of the winter, followed by repeated sudden changes of temperature during its closing weeks, a large number of insects, both injurious and innocuous, were destroyed. In this way we may account for the very limited numbers during the past season of many species that were especially abundant and destructive last year. For instance the Red-humped and Yellow-necked Caterpillars which were so abundant in many parts of Ontario during the last few years were rarely seen or complained of. This was also the case with the Checkered Tussock-worm on fruit and shade trees, the Zebra Caterpillar on cabbages, beets and turnips, the Tent Caterpillars in woods and orchards, and various others. The Wheat Midge, which threatened to become a serious menace to the farmers' crops, has almost entirely disappeared; it is difficult to say whether this immunity was due to weather conditions or to the effectual methods of control adopted by wheat-growers—probably to a combination of both natural causes and human effort.

Aphids seem to be impervious to all external influences and were more abundant and widely destructive this year than ever. Trees and shrubs, vegetables and flowering plants were attacked and often had their vitality greatly impaired by the countless hordes of these tiny pests, which suck out the life juices of whatever they attack. Numerous complaints were received respecting White-grubs and Wire-worms, which almost invariably attack crops grown upon land that has for some years been under grass. This was especially the case in "war gardens" in cities and towns, and many patriotic workers were sadly disappointed when they found their potatoes perforated and spoilt by these underground depredators.

One of the chief aims in the work this year was to assist in the greater production of agricultural products by better control of insect pests. With this end in view addresses of a simple, practical nature on the control of such common insects as potato beetles, cabbage worms, currant worms, grasshoppers and aphids were given wherever requested, as time permitted. In fruit districts where it had been observed that great loss by any special insect had taken place the year before, the fruit growers were visited and shown clearly how to prevent the loss this season. In this way much good was done; for instance, where thousands of baskets of sour cherries had been destroyed last year by the Cherry Fruit Flies at Burlington, scarcely a score were lost this year and the sole reason was that this year the growers followed the instructions given.

Of the investigational work the following paragraphs on two points will be of interest:—

Dusting. Owing to the high cost of sulphur and arsenate of lead dust and the fact that most of the orchard experiments were this year carried on at Brighton, far away from where the dusting machine had been stored, only about three acres of apple orchard could be dusted. This work was done at Vineland in co-operation with Mr. W. A. Ross. The results were again almost as good as those from the liquid spray. In dusting experiments by other persons in the province the results of which we had the privilege of examining, the liquid spray gave much cleaner fruit than the dust.

Spray Gun. A good test of the value of this new device for spraying was made. In our expert's opinion the spray gun is a great boon to fruit growers. It enables one man to do the work of two and to do it more easily and more

thoroughly and with less material. The chief drawbacks to its use are that it cannot be used successfully with hand outfits, and that in some cases it tends to burn the fruit.

MOST PREVALENT WEEDS

Analysis of correspondence by the Department of Botany during the past twelve months indicates that the following weeds have given most trouble during the past year:—Field Bindweed (*Convolvulus arvensis*), Twitch Grass (*Agropyron repens*), Wild Mustard (*Brassica arvensis*), Perennial Sow Thistle (*Sonchus arvensis*), Poison Ivy (*Rhus toxicodendron*) around summer homes, Ox-eye Daisy (*Chrysanthemum leucanthemum*), Bladder Campion (*Silene latifolia*), False Flax (*Camelina microcarpa*), Tufted Vetch (*Vicia angustifolia*), and Indian Mustard (*Brassica juncea*, L.).

Indian Mustard (*Brassica juncea*, L.) appears to have become very prevalent in many parts of the Province and is causing considerable anxiety to farmers in some localities. It resembles somewhat closely Common Mustard but the whole plant is smoother, being nearly hairless, and covered with a fine bloom. The pods are a little longer and they have much longer and more widely spreading stalks (pedicels) than those of common Mustard. Indian Mustard is an annual and produces large numbers of seeds, but fortunately these do not seem to retain their vitality for any great length of time in the soil. It seems safe to say that Indian Mustard will never become a very serious pest in well cultivated fields. It should not, however, be neglected and allowed to go to seed, as it is not safe to take chances with any new weed.

POTATO INVESTIGATIONAL WORK

This work was undertaken to determine the best source from which to obtain seed potatoes free from the so-called “Physiological diseases,” such as Leaf Roll and Mosaic, which would give large yields. With this object in view Green Mountain and Irish Cobbler seed potatoes were obtained from Southern Ontario, Northern Ontario and New Brunswick. The seed from these sources was planted side by side in plots in nearly every county in Southern Ontario. Two sets of such plots were planted in each county, one set on heavy soil and the other on light. The Agricultural Representatives co-operating with the farmers in their counties looked after the planting, spraying and cultivation of these plots. During the summer each plot was inspected for disease by Mr. Aiton of this Department. This fall the Agricultural Representatives ascertained the yields obtained from the seed of each of the three sources. The following table summarizes the results of these experiments and shows the average percentage of Leaf Roll, Mosaic, Foreign, and Misses found in the plants grown from the seed of the two varieties from the three different sources. It also shows the average yields in bushels per acre from each variety from the three sources:—

SUMMARY OF ALL THE COUNTIES

No. of plots inspected	380	
“ plants examined	74,200	
“ farms on which plots were situated	64	
Average percentage of Leaf Roll in Irish Cobblers..... (S. Ont.)	44.6	Yield 137.6
“ “ “ “ “ “ (N.B.)	5.2	“ 140.4
“ “ “ “ “ “ (N. Ont.)	1.1	“ 153.7
Average percentage of Mosaic in Irish Cobblers..... (S. Ont.)	2.4	“ 137.6
“ “ “ “ “ “ (N.B.)	2.9	“ 140.4
“ “ “ “ “ “ (N. Ont.)	1.2	“ 153.7

CAUSES OF INJURY

(1) *Root Killing*. Caused principally by the use of tender roots for budding and grafting. Worse on wet or heavy undrained land. Caused also by lack of snow or other ground cover. Worse on sites exposed to wind. All varieties affected, even the hardiest.

(2) *Collar or Crown Killing*. Caused by lack of drainage and by forcing trees for strong growth as with heavy applications of stable manure or long continued cultivation. Some varieties are particularly susceptible, notably King and Ontario.

(3) *Bark Splitting*. Caused by a sudden drop in temperature. Much worse in strong growing trees and on sunny exposures.

(4) *Bark Killing*. Caused by drying out of the bark in long continued cold spells. Increased by exposure to wind.

(5) *Sunscald*. Occurs on areas exposed to strong sun of late winter and early spring. Caused by repeated freezing and thawing.

(6) *Crotch Injury*. A common and serious form of damage which leads to decay in the heart of the tree. The cause is not obvious. The injury is seriously induced by over growth.

(7) *Killing Back of Branches*. Occurs on tender varieties and is seriously induced by over stimulation of wood growth. Caused by low temperatures, especially if long continued.

ONTARIO VETERINARY COLLEGE

The attendance during the year has been materially reduced as a result of the war, yet at the same time the classes have been fairly well maintained in comparison with other institutions. With the war over the attendance will no doubt in due course return to normal proportions. During the past College session, which ended April 30th, the number of students in attendance amounted to 99 in all classes. Of this number 49 were graduated and received the diploma of the College, and 8 of them were subsequently granted the degree of Bachelor of Veterinary Science (B.V. Sc.) by the University of Toronto. During the present session, which commenced October 1, 1918, there were 73 students attending. The first and second year classes have entered in the course now requiring four years attendance for graduation. Included in the present classes are a number of students returned from active service overseas under routine military orders to continue their professional training. This indicates the importance attached to veterinary training by the military authorities.

In view of the extension of the course from three years to four years attendance the staff has been strengthened and an expansion and rearrangement of the curriculum has been made. Several new subjects were added, including Clinical Diagnostics, Physics and Bio-Chemistry. The latter two of these subjects are taught at the University of Toronto. The subject of Clinical Diagnostics is being taught in the College Infirmary and at the Military Remount Depots where a large number of horses are at present available for demonstration purposes. This branch of instructional work could profitably be further extended to include cattle, sheep and swine in addition to horses. The extension of instruction in this direction would materially improve the training for general practice and permit of better service being rendered to clients in the treatment of their live stock for disease.

Another new departure in the course of tuition is that of Public Speaking. This training is already showing good effects in the students by improving their rhetoric as well as their knowledge of the proper procedure in the conduct of meetings such as the Weekly Science Association meetings at the College. At these meetings the students give addresses on professional subjects which are discussed by the members present.

Further adjustments and expansion of the course of studies and instruction are being considered owing to the transition of veterinary usefulness to a greater extent from the city to the country. This is incidental to the somewhat lessened demand for horses in the cities because of the more general use of the automobile and motor, and on the other hand to the constantly increasing demand for veterinarians to attend to ailments affecting horses, cattle, sheep and swine in farming communities. To cope with these exigencies the College should consistently strive, by maintaining a high standard of efficiency for the proper training of veterinarians, to attend to the needs of clients and safeguard live stock interests in general against losses from preventable diseases.

In addition to training students for general practice as veterinary surgeons the College also trains them for scientific pursuits and to conduct research work, which may tend to solve many of the live stock problems occasioned by disease with consequent national economic losses. It also trains the student for sanitary service work in suppressing contagious diseases of animals and in preventing the transmission of diseases such as tuberculosis to mankind through unwholesome

milk supplies and from meats and meat food products of doubtful origin. The inspection of animals both before and after slaughter by qualified veterinary inspectors at abattoirs is essential for the establishment and continuance of an export dressed meat trade with Great Britain and the United States as these countries impose import regulations which require veterinary inspection and certification of all meats and meat food products from Canada. The College therefore serves an important national function for the upbuilding of an export dressed meat trade from Canada by properly training students for the work of meat inspection.

At the present time veterinary science is particularly worthy of encouragement as a suitable occupation and field of endeavor for the young man desirous of improving his own status in life and rendering useful service to the community at large. In comparison with other professions it does not necessarily tend to disassociate him from agriculture but rather to create a greater desire for everything that pertains to the improvement and advancement of agriculture, particularly that branch of the industry associated with the management, conservation, breeding and improvement of live stock. It is universally conceded that live stock is an absolute necessity to successful agricultural development through assisting to maintain soil fertility and by converting the cheaper materials grown on the farm into higher priced finished food products. In the completion of this the College materially assists by training students in veterinary skill and science for the successful treatment and prevention of various ailments and diseases of animals and to protect live stock from being depleted through contagious diseases. The field of veterinary science has only just touched the fringe of its possibilities and usefulness and offers many opportunities for the young man of worthy ambitions, and in view of the real service which it may render the general community and agriculture it should attract a superior class of student to the College. The class of student most desired is the young man of sound views with a general knowledge of live stock and a good education to meet entrance requirements and enable him to acquire a true grasp of the deeper principles of advanced thought and study.

BUREAU OF INDUSTRIES

At the close of the fiscal year, the "Bureau of Industries" disappears as a Branch of the Department, and the "Statistics and Publications Branch" takes its place. The change is merely one in name, but is nevertheless of considerable historical interest. The Bureau of Industries was established in 1882, which was even before the creation of the Department of Agriculture. It was authorized by statute to collect statistics on manufacturing, industrial, municipal and agricultural subjects. All these lines were carried on for a time, but with the development of the Province and changes in the administrative organization, the work was divided with other Branches. Industrial subjects were years ago assigned to the Labour Branch, and a year or two ago, municipal subjects were assigned to the newly created Municipal Branch. This left only Agricultural statistics which naturally belong to this Department, and the collection and tabulation of statistics on all lines of field crops and live stock will be continued in accordance with the system which has been so long established. In this connection, it might be noted that an arrangement has recently been made with the Census and Statistics Bureau at Ottawa, by which the two offices will co-operate in so far as statistics in this Province on Agricultural matters are concerned. Part of the work will be done by each office and the results announced simultaneously. The value of Ontario figures at Ottawa is, of course, as part of the figures for the Dominion as a whole, while in the Province they have a more local interest and will therefore still be tabulated by Counties. Moreover, by this plan duplication will be avoided and uniformity of results obtained.

Along with the tabulation of statistics, this Branch will also look after the printing, mailing and distribution of the different publications issued by the Department. These publications are more and more in demand each year, as their practical usefulness is more generally established. The following is a list of the publications issued during the past year:-

*194 Apple Orchardling	15,000
*235 Sweet Clover	3,000
257 Diseases of Fruit Trees	20,000
258 Diseases of Vegetables	15,000
259 Books on Agriculture and Household Science	25,000
260 Experiments with Farm Crops	15,000
261 Wheat and Rye	30,000
262 Sugar Beets	37,000
263 Mushrooms	12,000
264 Diseases of Digestive Organs of Horses and Cattle	30,000
265 Bacteria—Friends and Foes	12,000
266 Cheesemaking and Buttermaking	30,000
267 Farm Water Supply and Sewage Disposal	30,000
	264,000

The following crop bulletins have been printed for distribution:—

133 Crop Bulletin, November, 1917	20,000
134 Crop Bulletin, April, 1918	4,000
135 Crop Bulletin, May, 1918	5,000
136 Crop Bulletin, August, 1918	6,000

*Second editions.

The distribution of the Annual Reports has been continued and the following are the figures of the numbers printed for distribution:—

Minister's Report	25,000
The Ontario Agricultural College	25,000
The Experimental Union	25,000
Agricultural Societies and Field Crop Competitions	21,000
Horticultural Societies	20,000
Vegetable Growers' Association	5,000
Live Stock Branch and Appendices	40,000
Stallion Enrolment Board	5,000
Women's Institutes, 1 and 2	44,000
Dairymen's Associations	25,000
Entomological Society	3,500
Fruit Growers' Association	4,000
Beekeepers' Association	4,000
Bureau of Industries (Agricultural Statistics)	7,500
Vineland Horticultural Experiment Station	5,000
	<hr/>
	258,500

Circulars were printed for special distribution as follows:

3 A Vegetable Garden for Every Home	50,000
4 Letter to Clergy <i>re</i> Hog Production	3,500
5 Letter to Rural Teachers <i>re</i> Hog Production	6,000
6 Keep an Extra Sow	100,000
7 Spring Wheat	100,000
8 Backyard Pig Feeding	100,000
9 Booklet for Junior Women's Institutes	3,500
10 Varieties of Farm Crops	15,000
11 War Time Foods and Cooking	15,000
12 Drying of Fruit and Vegetables	25,000
13 Winter Wheat	12,000
14 Save Your Seed Corn	15,000
15 Live Stock Shipping Associations	12,000
	<hr/>
	457,000

FRUIT BRANCH

Since 1914, five apple orchards of from 200 to 350 trees each have been operated by the Branch in different parts of the Province to try out various methods of pruning, spraying, cultivation, and crop handling. The latter line of work was interfered with seriously during the war owing to the desires of the Government to supply the Canadian hospitals in Europe with fresh fruit, resulting in our shipping the product of these orchards overseas for the past four years. It had been the intention to try out car lots of boxes in the Western markets and in Great Britain in comparison with the same quality of fruit in barrels. It was also felt that more of our good varieties packed in boxes should be placed on the markets of



Farmerettes in an Ontario berry patch.

the larger cities in Ontario in competition with the Western product. These experiments may be again considered if the apple crop of 1919 warrants it. Five experienced men have been employed the greater part of the year in the carrying out of the experimental and demonstration work outlined.

An Act known as the Fruit Pests Act, has been part of our laws since the introduction into Ontario of the San José Scale. This Act was drafted for the protection of fruit growers against the spread of such insects and diseases as Codling Moth, San José Scale, Black Knot, Yellows and Little Peach, Pear Psylla, and Pear Blight, and any others of a dangerous character that may be introduced from time to time. The system of inspection of orchards is by municipal officers appointed locally, but supervised by Provincial officers. The Provincial

Entomologist has charge of the work, aided by a chief inspector, and two permanent assistants. For investigational and nursery work, temporary help is employed during the summer months.

Included in the above item should be mentioned the work of the Provincial Entomologist in his investigations in the life habits of and remedies for some of the most destructive pests that worry the fruit grower. Only those in close touch with the work realize the time and thought required to get the results finally put out in bulletin form and through the Spray Calendar each year. The apple maggot, the cherry fruit fly, the leaf roller, the pear psylla, all very troublesome, have been studied in turn and efficient methods of control worked out.

Under the Fruit Pests Act, one-half the cost of local inspection of orchards is borne by the Province. In 1918, fourteen municipalities took advantage of such assistance, receiving therefor the sum of \$1,356.13. Naturally the greater part of the work is carried out in the Niagara Peninsula, where the fruit growing interests are sufficiently strong to secure the active assistance of the municipal councils. Under the provisions of the Act, upon petition of twenty-five or more ratepayers who are *bona fide* fruit growers, the council is required to appoint a competent man as inspector, subject always to the approval of the Minister of Agriculture.

ASSOCIATION WORK

Under a special Act known as the Agricultural Associations Act, there are incorporated some twenty societies having for their object the promotion of some special line of agriculture. Each of these associations is entitled to receive from the Government a specified sum of money voted each year by the Legislature for the carrying on of its work. At the end of the year, reports must be submitted to the Government showing the activities of each and how such moneys were expended.



"Farmerette" camp in one of the Ontario fruit districts.

Included in those coming under the direction of the Fruit Branch are such associations as the Fruit Growers' Association, the Gardeners' and Florists' Association and the Ontario Horticultural Exhibition. During the period of the war, the expenditures of some of these societies have been curtailed while the Horticultural Exhibition has been forced to suspend operations until the military authorities

give up the use of the buildings of the Canadian National Exhibition during the fall. With the signing of the armistice, there has come a renewed vigor in the work of these associations, and the directors of the Exhibition hope again to put on a bigger and better show of fruits, vegetables, flowers and honey than has been shown in the years previous to the Great War.

VINELAND EXPERIMENTAL FARM

This Station was started at Vineland in the heart of the Niagara Peninsula thirteen years ago, as the centre of all experimental work with fruits and vegetables. Orchard planting was begun in 1908, and plant breeding work some time later. At present there are about 150 acres under cultivation, orchards, vineyards, and small fruit plantations, containing all the leading and new varieties, and thousands of seedlings from both natural and artificial breeding. Many valuable experiments are under way, and with the orchards now coming into bearing the visitor to the farm will find much of interest to him at all times.

The Station is equipped with greenhouses, packing house, general office building, cold storage, canning plant, residence for director, and houses for foreman, teamsters, etc. A central heating plant covers greenhouses, office building and director's residence. Several acres of land are under the Skinner Irrigation System, while a pumping plant at the lake supplies water to all of the farm buildings. Two reports of the work being carried on have already been issued while a third is now being prepared. Results of some of the experiments have been issued from time to time. Six scientifically trained men are at present employed on the permanent staff.

FRUIT FOR SOLDIERS

Since the outbreak of the war the Fruit Branch on behalf of the Government has collected and shipped large quantities of fruit for distribution among Canadian Soldiers in Hospitals overseas. The apples were shipped in boxes and the canning and preserving of other fruits was done at the Vineland Farm. Only fruit of the best quality was forwarded. Following is the summary of the quantities forwarded during the war period:—

APPLES.

1914	.....	200	boxes
1915	.....	10,000	"
1916	.....	25,000	"
1917	.....	33,000	"
1918	.....	25,000	"

CANNED GOODS.

1915—Canned peaches	.....	20,000	gallon	cans
1916—Jams, jellies, peaches, apples, plums, pears	.....	49,140	"	"
(32,562 gallons peaches.)				
1917—Jams, jellies, etc.	.....	97,782	"	"
The largest quantities being made up of				
Peach jam	.....	6,534	"	"
Peaches in syrup	.....	45,990	"	"
Pears in syrup	.....	22,752	"	"
Six carloads of fruit were distributed in Canada in 1917 for the use of returned soldiers.				
1918—Jams, jellies, etc.	.....	50,000	"	"
		292,198		

Owing to congested transportation it was difficult to forward the output of 1917 and it was not all sent overseas until well on to the summer of 1918. Hence the make for 1918 was more limited. The Department during the first few years distributed the fruit overseas through its own organization, but the pack of 1917 and 1918 has all been turned over to the Canadian Red Cross at Canadian ports and has been distributed through their organization in Great Britain and France.

NORTHERN ONTARIO PLANT BREEDING STATION

The following notes record the activities of the Northern Ontario Plant Breeding Station, at the Industrial Farm, Fort William, Ontario, for the season of 1918, and outline, in general, its aims and policy.

The first actual plant breeding work with fruits was performed in the spring, when several varieties of cultivated strawberries of desired quality and size were fertilized with pollen of two selections of common wild strawberries and one selection of wild alpine strawberry. Four varieties of garden raspberries were pollinated with pollen from selected wild red and wild white raspberry.

The resulting seedlings will be observed as they develop under field conditions and without protection or special nurture. One of the factors to be ascertained is just what percentage of wild blood is required in the future berry so that it will thrive without the aid of winter protection.

Many trees, shrubs and vines were purchased from commercial nurseries and planted in the nursery rows preparatory to being used in the ornamentation of the grounds and driveways of the Industrial Farm. Specimens of some interesting varieties, such as those recently introduced by Prof. N. E. Hansen from Asia, were secured and added to the trial plots where they are undergoing test of climate and thus showing the extent of their suitability for this region. A quantity of native forest pulled seedlings were put in the nursery. A large number of seedling trees and shrubs resulting from the seed sown in 1917 have prospered.

In small fruits, additions were made to the number of varieties of strawberries, currants, raspberries and blackberries. A collection of the hardiest varieties of grapes were secured from the Dominion Horticulturist, Ottawa, and from Minnesota and Manitoba nursery firms, and these will serve as indicators for the Experiment Station's future efforts in viticulture.

The tree fruits were increased by the planting of several rows of Hibernial apple and Darrt crab apple to be used for top-working; a number of further varieties of apples, plums and plum hybrids raised by nurserymen of the prairies; and also several new varieties of these fruits which have been developed by Prof. N. E. Hansen at Brookings, South Dakota, and by Minnesota fruit-growers. Some promising Russian pears were received from Mr. David Tait, Iron Bridge, Ontario, as well as a shipment of his own grown seedlings. Mr. Chas. Young, Richards Landing, Ontario, who has been doing extensive experimenting for the Fruit Branch for many years, furnished different kinds of hardy plum trees. A few hundred seedlings from Manitoba-grown apples and Russian-variety cherries were obtained from A. P. Stevenson & Sons, Morden, Manitoba, and will be tried out here and by experimenters in other northern parts of the Province. Hardy crab apple seedlings are being developed for use as stocks in root-grafting. Upwards of 2,600 apple seedlings were started in pots in the greenhouse and transplanted to the field. Large numbers of young trees are developing from seed of apples, native plums, native cherries, Saskatoon berries, and native nuts, sown in the field. The shelter belt was widened by planting more good specimens of promising native fruits.

Nothing of more present interest has been set out on this Station than the shipment of Bacurjaney apple and pear seedlings. These were grown by the Professor of Horticulture, Ontario Agricultural College, Guelph—who secured the seed some five years ago from high altitudes in the Caucasus Mountains in Russia. The seed was obtained with the specific purpose of being a factor in the development of a satisfactory pomology for Northern Ontario, and as it is claimed for the apples that they are as hardy as the *Pyrus baccata*, of much larger size and superior quality, results from the seedlings are awaited with deep interest.

In the vegetable garden—variety tests were continued and observations made in regard to different methods of culture and suitability of types. Seeds from the Experiment Stations at the Central Dominion Experimental Farm, Ottawa, the Ontario Agricultural College, Guelph, and the Provincial Horticultural Experiment Station at Vineland Station, were sown for comparison with ordinary commercial seed. Among the crops of outstanding merit were—C.E.F. Peas, O.A.C. Celery, O. A. C. Lettuce, H.E.S. Beets.

If the statement be correct, that the farther North seed is successfully and satisfactorily grown the greater will be the vigor of the resulting crops, then it would seem that there is an attractive line of work in vegetable seed growing in Northern Ontario. Considerable experimental work along this line is being done at this Station and the results from some of the seed, such as Spinach, raised in 1917 and sent to growers near Lake Ontario, have been very impressive. The crop was earlier and more vigorous than that from Southern-grown seed.

Seed raised in 1918 includes spinach, peas, beans, radish, turnip, cabbage, carrot, parsnip, parsley, celery, salsify, onion, rhubarb, tomato, cucumber and squash. To mature seed, beets seem to require too long a season for successful culture here, and carrots should be on an early soil which possesses a favorable exposure.

Special selection work was done with peas and spinach, and samples of these and other seed are being sent to Experiment Stations and growers in Southern parts of the province. And, if the advantages of northern-grown vegetable seeds prove to be pronounced, much emphasis will be given to the growing of them.

The different districts of Northern Ontario have been receiving attention as prospective sources of potatoes for seed purposes to supply the urgent needs of more southern districts. In Thunder Bay district the growing of seed potatoes promises to become an increasingly prominent industry, and this Station began conducting experiments to ascertain the most suitable dates of planting the optimum in regard to depth of setting the seed, distance between the sets in the row, and methods of cultivation, as well as a comparison of whole tubers and cut sets.

Distribution of material was commenced. It comprised forest tree seeds, forest pulled seedlings, fruit trees, fruit seeds, vegetable seed, flower seeds, which were sent to different experimenters. There is a wider variety and greater quantity of materials in readiness for sending out in the spring of 1919.

“To be of greatest benefit to a region, the work must be done in the region,” is the principle prompting the method adopted in developing a Northern Pomology. Fruit seedlings are being raised by the thousands here in the North for the North and it is expected that progress will be steady. An important side of the work is acting as a trial station for the various plant breeding stations of this Province of the Northern States. Co-operation has begun with the experiment stations of Minnesota, South Dakota, North Dakota and Manitoba in the experimenting with different schemes in the culture of fruits, the testing out of variet-

ies to determine their respective ranges of hardiness, and the utilizing of native fruit plants.

Public School properties, here and there, are receiving assistance in the way of making plans for their adornment and securing trees and shrubs for their planting.

Returned soldiers taking up land in Northern Ontario will be supplied with plants of small fruits, fruit trees, and other horticultural products to assist in the making of their homes.



Tractors were used even in harvesting.

AGRICULTURAL SOCIETIES BRANCH

Agricultural and Horticultural Societies, the Ontario Vegetable Growers' Association and its branches, and the Ontario Plowmen's Association and branches come under the supervision of my branch of the Department of Agriculture.

AGRICULTURAL SOCIETIES

Three hundred and fifty Societies are regularly incorporated under the Agricultural Societies' Act, as amended in 1906, and this number is being added to each year by the formation of new societies in Northern Ontario. The total membership to date is over 250,000. In order to encourage the societies in the north and in unincorporated districts they are, to the number of 62, given an additional appropriation of \$5,000 and also their regular grants are based on double their expenditure for agricultural purposes, which doubles their grants as compared with



A prize-winning team at the fall fair.

those to societies in Older Ontario. In the division of the regular grant of \$75,000 the amount societies formerly received was 33 cents on the dollar of expenditure for agricultural purposes. This has now been reduced to 28½ cents owing to the formation of several new societies. The total expenditure of all Agricultural Societies in the Province is \$489,334 being seven times as much as the grants they receive. The Canadian National and Central Canada Exhibitions and the Western Fair receive a sum of \$5,000 which is divided among them according to their expenditures for agricultural purposes.

Besides the holding of Fairs and Exhibitions, Agricultural Societies hold Seed Fairs, Spring Stallion and Bull Shows and Standing Field Crop Competitions. A number of societies hold no exhibitions, but devote all their funds to the purchase and maintenance of pure bred stock, with excellent results for the localities in which this plan is adopted. These Stock Societies receive a grant of \$50 for each stallion kept, \$20 for each bull, \$15 for each boar and \$5 for each ram. They also receive \$50 as a membership grant.

FIELD CROP COMPETITIONS

These were inaugurated in 1907 when ten societies entered and 250 farmers competed with one crop. This line of work has met with the hearty approval of the agriculturists of Ontario and has expanded from time to time until in 1918, 7,500 farmers entered these competitions and the two-crop system was adopted. In order to increase production, prizes for spring wheat were largely increased in 1918, and the result was that the experiment in the production of Marquis wheat proved a great financial success and we had the largest entry for that crop since the inauguration of the competitions.

Under the rules and regulations the Department give a grant of \$50 for each crop (except for spring wheat where it is \$75), and the Society contributes \$25 for each crop.

In addition to the above, the first five prize winners in the Standing Field Crop Competitions are eligible to compete for the large prizes offered at the Canadian National and Central Canada Exhibitions and Guelph and Ottawa Winter Fairs. Prizes are offered for sheaves as well as two bushel sacks of grain.

WET WEATHER INSURANCE GRANTS

Since 1911 the Legislature has made an appropriation of \$10,000 to societies suffering loss in gate receipts owing to wet weather conditions as specified in Section 24, Subsections 2 and 3 of the Act. The grant is based on the loss in gate receipts as compared with the average of three previous normal years, and the Society receives 75 per cent. of the loss. The application for the grant must be accompanied by an affidavit, sworn to by the President, Secretary and Treasurer. This appropriation has saved from financial wreck many of our smaller societies.

ONTARIO ASSOCIATION OF FAIRS AND EXHIBITIONS CONVENTION

The Convention of the Ontario Association of Fairs and Exhibitions is held in February, in Toronto, and is attended by delegates from all the societies. At this meeting, matters of vital importance to the societies are discussed and suggestions for future improvements at Fairs and Exhibitions put forward. Many valuable improvements have been thus inaugurated. This organization receives no grant from the Government. The proceedings of this Convention are embodied in the annual report of the Agricultural Societies, and an Appendix to this report is also published annually containing the names, addresses and scores of competitors in the Field Crop Competitions, together with the names of the varieties of grain and of noxious weeds found and the standing of the prize winners at the Canadian National and Central Canada Exhibitions and the Guelph and Ottawa Winter Fairs. This Appendix has proved a splendid advertisement for the farmers who had prize winning seed grain for sale and has brought large financial benefits to all concerned.

HORTICULTURAL SOCIETIES.

In 1906 the new Act was passed putting Horticultural Societies on a separate basis from Agricultural. From a membership of a few hundred and a small number of struggling societies, they now have a paid membership of over 18,000 and nearly one hundred societies, distributed from Dryden in New Ontario to Glengarry in the West. The members of these societies are very enthusiastic and are doing splendid work in inaugurating improvements and beautifying cities, towns and villages in the Province. Many of the societies hold exhibitions.

A special feature during the war era has been the marvellous effort in the production of food stuffs and all kinds of vegetables. Reports to hand show that hundreds of tons of garden products have been grown on front and back yards and vacant lots that in all previous years were covered with noxious weeds. Speakers and judges are supplied by the Department for meetings and exhibitions.

The Ontario Horticultural Association meets annually in this city and is attended by delegates from every society in the Province. The improvement of school grounds, streets and the beautification of home surroundings are particular lines that receive their careful consideration. A report of these proceedings and of the work of the societies is published annually and is much appreciated by the members.

ONTARIO VEGETABLE GROWERS' ASSOCIATION

The Ontario Vegetable Growers' Association supervises the work of the Field Crop and Garden Competitions carried on through their local branches. They hold a Convention each year in February, the annual report of which is edited by me. The Legislative grant to this Association is \$800. Two years ago, besides the Vegetable Crop Competition, Garden contests for the substantial prizes offered were inaugurated and have proved of great value each year, not only to the competitors but to the communities in which they are held. This Association holds an annual Convention, which is addressed by experts and practical vegetable growers, and meetings held by the branches are frequently addressed by speakers sent out by the Department. The prize winners in the Field Crop Competitions are eligible to compete at the Canadian National and Central Canada Exhibitions, and the Western Fair, and their exhibits have always received favorable comment.

ONTARIO PLOWMEN'S ASSOCIATION

This Association has been in operation for several years and receives a grant of \$1,000 from the Ontario Government. Interest has been revived among the young farmers in Ontario in the better cultivation of the soil. Besides the Provincial and Branch Plowing Matches, this Association has worked in hearty co-operation with the manufacturers of farm machinery, both in Canada and the United States and their farm power and other machines have proved of inestimable value to the farmers who see their machines in operation side by side and are thereby in a better position to intelligently select the farm machinery best suited to their particular conditions. Judges for Branch and Provincial Plowing Matches are supplied by the Central Association and paid by them. The amount offered at the Provincial Plowing Match in prizes is \$1,500. The Provincial plowing match is a big annual event and was to have been held at Ottawa for 1918. Owing to the influenza epidemic it was cancelled by the Ottawa authorities.

LIVE STOCK BRANCH

The second annual co-operative wool sale of the Ontario Sheep Breeders' Association in co-operation with the Ontario Department of Agriculture was held in June and July. Wool was received for sale during these months and was graded by the officials from the Dominion Live Stock Branch and sold by the Canadian Co-operative Wool Growers Limited, Toronto. The great increase in amount of wool handled in 1918 over 1917 is indicative of the success of co-operative wool marketing.

The following are the grades, pounds of each grade, and price per pound in 1917 and 1918.



Co-operative wool sales are helping to develop the sheep industry.

Grade	1917 Pounds	1917 S.P. per pound	1918 Pounds	1918 S.P. per pound
Fine Medium Combing.....	3,461	67	8,102	76½
Medium Combing.....	82,241	66	129,518	76¼
Medium Clothing.....	7,184½	67	24,678	73½
Low Medium Combing.....	64,636	63½	228,281	73¼
Low Combing.....			169,297	67
Coarse Combing.....	93,444	57	104,820	60¾
Lustre.....	4,480	57		
Rejects—				
1 Burry and Seedy.....	8,835	50	{ 12,790	42
2 Cotts.....			{ 25,509	50
3 Dead.....			{ 3,764	50
Grey and Black.....	1,351	46	4,205	41
Locks and Pieces.....	604	34		
Tags.....	4,886	26	17,910	16½
Washed Wool.....		78	7,639	{ 95 Fine 85 Coarse
Miscellaneous.....			4,680	
Total.....	271,122½		741,193	

STALLION ENROLMENT

The report of the Stallion Enrolment Board for 1918 gives a total of 1,993 stallions enrolled of which 1,535 are pure-bred and 458 grades. To assist buyers in purchasing pure-bred stallions, a catalogue containing names and information regarding pure-bred horses offered for sale, has been printed and distributed among owners and prospective buyers. 1918 was the first year in which premium certificates have been granted to stallions in the Province. Forty-two stallions were given premium certificates, the premium amounting to \$50.00 when between 35 and 60 foals were obtained during the season of 1918 and where over 60 foals, \$100.00. The enrolment of grades ceased with the season of 1918, and therefore, the Province of Ontario will depend for its future stock of horses only from the use of pure-bred sires. Through the work of the Enrolment Board, pure-bred sires have been graded as to conformation, and it is hoped that with the decrease in the number of poor sires used and the increased publicity of good sires, that the quality of the Ontario horses will gain from year to year.

WINTER FAIRS

The Ontario Provincial Winter Fair held at Guelph in December, 1918, was most successful from the point of view of exhibits.

The prize list was increased in some sections from the previous year, and as the classes were better filled \$2,000.00 more was paid out in prize money. The entries were very heavy in all classes, new records being made in the number of entries in every department, except dressed poultry, which was slightly less. The quality of the animals exhibited this year was never better, and the same can be said of the seeds and poultry. The mild weather at the time of the Fair and the scarcity of labor no doubt affected the exhibit of dressed poultry.

The attendance was considerably below that of 1917, due to the unfortunate recurrence of the influenza epidemic just at the time of the Fair.

Owing to the Military authorities requiring the use of the buildings during the winter of 1917-1918, no Winter Fair was held at Ottawa during the past year.

DEMONSTRATION SHEEP FLOCKS

The Ontario Department of Agriculture, in an endeavor to increase the popularity of the sheep raising industry in the Province, has placed demonstration flocks of five ewes in those parts of the Province particularly suitable for sheep raising and in which this industry has not been carried on as extensively as it should be. These flocks are placed with young farmers who agree to follow recognized methods in the care and management of the flock under the supervision of the Live Stock Branch. The ewes in these flocks are all grades but a pure-bred sire is used in every case. The flock owners agree to return to the Live Stock Branch, within four years of the time when the flock is given, six one or two shear ewes in payment for the flock given.

The following shows the distribution of the flocks by counties:

County.	Number of Flocks.
Dundas	1
Glengarry	1
Grenville	1
Halton	1
Hastings	3
Muskoka	2
Parry Sound	2

	Number of Flocks.
Peel	1
Peterboro	3
Renfrew	3
Temiskaming	4
Waterloo	1

CO-OPERATIVE SHIPMENTS OF LIVE STOCK

The co-operative shipment of pure-bred stock to the West has been carried on during 1918 as formerly. The stock is collected under the direction of the Live Stock Branch, and shipped in car lots to the West with a man in charge to look after the distribution. The year 1917 was a record year and 1918 practically equalled it. The following table gives the record for a number of years past:

Year	Horses	Cattle	Sheep	Swine	Total
1909.....	25	70	84	4	183
1910.....	39	51	36	7	133
1911.....	58	51	51	18	178
1912.....	51	45	24	20	140
1913.....	47	71	107	21	246
1914.....	49	97	34	20	200
1915.....	28	104	76	8	216
1916.....	59	185	100	22	366
1917.....	70	269	196	15	550
1918.....	62	245	180	4	491

PURE-BRED SALES

The Department has given a grant to Associations holding pure-bred sales to the amount of \$3.00 per head, the maximum not to exceed \$150.00. Fifteen Associations have availed themselves of the opportunity to receive these grants and from the applications received from other Associations it would appear that, in all sections of Ontario, pure-bred sales were becoming increasingly popular and pure-bred sires were more universally used.

POULTRY SHOWS

Fifty local Poultry Associations each received a \$50.00 grant for the fiscal year 1917-18. The Associations also received assistance in the way of lecturers and demonstrators, and from reports made by local secretaries and official demonstrators and judges, it would appear that the poultry industry of the Province was never in a more prosperous condition and at no time have the breeders of improved poultry been more enthusiastic.

HORSE SHOWS

Owing to conditions arising out of the war, a great many horse shows have been discontinued. The number receiving a grant for 1917-18 are four.

In addition to the regular work of the Live Stock Branch the Director's time has been taken up to some extent with the work of the various Live Stock Associations, he being Secretary of the following Associations:

- Ontario Cattle Breeders' Association.
- Ontario Horse Breeders' Association.
- Ontario Sheep Breeders' Association.
- Ontario Swine Breeders' Association.
- Ontario Poultry Association.
- Canadian Sheep Breeders' Association.
- Canadian Swine Breeders' Association.

INSTITUTES BRANCH

The results of the campaign of previous years, with a view to stimulating a greater interest in the production of vegetables were manifest in the greatly increased area devoted to gardening in the villages, towns and cities of the province, in 1918. The call for lecturers was not so great as in 1917, for general interest had been aroused and information as to methods was sought for in the bulletin, "Vegetable Growing"; and the agricultural press, weekly and daily papers devoted much attention to the Home Garden. Lecturers were, however, furnished for a number of meetings.

MEETINGS HELD

The scarcity of labor and the growing importance of other activities under the direction of the Agricultural Representatives, resulted in a diminished call for regular Institute and Board of Agriculture meetings. 307 meetings were planned for, but on account of unfavorable weather, and in a few cases, conflicting attractions, a number of these meetings were cancelled. Interest in the addresses given was keen, and the farmers took a deep interest in the discussions.

A summarized statement of attendance of meetings, judging courses, demonstration lecture courses, etc., is given below:

RECORD OF ATTENDANCE.

Farmers' Institutes and Boards of Agriculture	31,500	
Women's Institutes	250,579	
		282,079
Demonstration-Lectures for Women	26,000	
Farmers' and Women's Institute Conventions	7,500	
Live Stock Judging Courses	5,100	
Cheese Factory and Creamery Meetings	12,540	
Vegetable Production Campaign	23,000	
Food Conservation and Preservation	7,250	
Medical Inspection	7,192	
		88,582
Total attendance		370,667

STOCK JUDGING COURSES

A great many centres have had the advantage of two-day short courses in Stock Judging, during the past 10 years, with the result that the number asked for during 1918 was somewhat less than in 1917. Emphasis is placed on Stock Judging at the Short Courses in Agriculture, under the direction of the Agricultural Representatives. This overcomes the necessity for conducting so many two-day short courses, for the longer course is much more thorough and valuable.

Definite ideals towards which to aim in the production of live stock have been impressed upon many of the young farmers throughout the province, as a result of the Stock Judging Courses, and this line of instruction will no doubt continue to hold a prominent place in our programme of work. During the winter of 1917-18, forty-four courses were held with an attendance of 3,269.

WOMEN'S INSTITUTES

The Women's Institutes continued to devote their time and resources to patriotic work until some time after the signing of the armistice, for there was still need for assisting the Red Cross, Belgian Relief, Serbian Relief, Secours National, etc. During the year ending with January, 1918, they gave in all, cash and goods for patriotic purposes, \$855,000.

In addition to their patriotic work, many of the Institutes continued through-

out the whole period of the war to devote some time to regular and special features of Women's Institute work. For the most part, these activities related to Food Production and Conservation; Health problems—Home Nursing and First Aid, Medical Inspection, Child Welfare, etc.; School Betterment; Community Welfare in the form of healthful play and entertainment, securing of rest rooms, reading rooms, travelling libraries, etc.

The 30,000 members of the 920 branches show a keen desire to take up the progressive programme that has been outlined. Full particulars as to the activities of and plans for the Institutes will be found in the report for 1918.

GIRLS' WORK. Within the last year or two many Junior Women's Institutes of Girls' Clubs have been formed. About 25 of these have separate organizations of their own, but the majority of them are sub-divisions of the parent organization. The latter has been found more satisfactory in rural communities where the senior members depend largely upon the girls to convey them to the place of meeting, to furnish the musical part of the programme, serve refreshments, etc.

The girls, where organized, did splendid patriotic work, they raised money in various ways, such as, giving dances, concerts, entertainments, cooking sales, etc., and purchased material which was made up into personal property bags, pyjamas, socks, trench caps, baby dresses, etc. One branch states "In addition to our patriotic work, we donated small sums of money to needy families who were suffering from the flu." It is important to note that while their main object was *service*, they were also developing themselves socially, physically and intellectually, and following the suggestions contained in the Booklet on Junior Women's Institutes, published by this Branch.

Another secretary in reporting states, "Our membership numbers 25, ranging in ages from 8 to 16 years, with a couple of Institute ladies acting as honorary presidents. We took up some sewing lessons and later when in need of funds to purchase material for Red Cross work, we held a bazaar, practically all of the dainty articles sold at it being made by the members of the club. Our monthly programme usually consists of short readings, songs, and piano music. Since our members are all school girls they have felt that the sewing was all they could attend to in addition to their ever present school homework. I am confident, however, that all our members will always remember with pleasure the happy hours spent with the Girls' Club as the needles flew, and we learned, lots of things that never go by rule, and a powerful pile of knowledge, that you never learn at college, and heaps of things you never learn at school."

Some of the topics appearing on a Junior Institute programme are—Patriotism; Our Book Friends; Spring, Its Beauty and Work; How to Create and Preserve the Atmosphere of Home; Cooking Demonstrations; and The Christmas Spirit. Girls' Club Work through the Institutes Branch promises to be one of the most important activities during the reconstruction period.

CONVENTIONS. An after-the-war progressive programme was outlined for conventions planned for Ottawa, London and Toronto, for October and November. The outbreak of influenza forced postponement until February, 1919, when only one convention (Toronto) was held. The epidemic very seriously disarranged plans for meetings and conventions during the latter part of 1918.

DEMONSTRATION LECTURE COURSES

The interest taken in demonstration lecture courses is growing steadily. Even during the latter period of the war, Institute members found it to their advantage to hold these courses, as they received much information of practical and immediate

value, in addition to adding a number of new and interested members to their organization. The great need for food conservation during the war, and later the high cost of living had led many to apply for the ten-day course in Food Values and Cooking. Twenty-three such courses were given. Thirty-nine Sewing Courses and 22 Home Nursing and First Aid Courses were also held, with an aggregate attendance of 26,000. Greater appreciation of the Home Nursing Course has been shown since the epidemic of influenza, as those who had taken advantage of the instruction given were able to render invaluable service to the doctors and patients in their own homes as well as to the surrounding neighbors. Had it not been for the epidemic, many additional courses would have been given as many applications were on file. The fact that practically all branches where courses have been held are making application for second courses is sufficient proof that the instruction given is appreciated.

The Institutes Branch also furnished instructors in Home Nursing First Aid, Food Values and Cooking and Sewing for the three weeks' course put on at the Agricultural Training School, Monteith.

MEDICAL SCHOOL INSPECTION

The Institutes are turning their attention, more and more, to health problems. This has been due in a large measure to the need revealed through the inspection of school children by doctors sent out by the Institutes Branch. During the year, 1918, 7,192 were inspected in various parts of the province. Approximately, 70 per cent. of the children have been found to have defective teeth; 33 per cent. have enlarged or diseased tonsils, and adenoids; 19 per cent. have impaired vision, and 10 per cent. have defective hearing. Following the inspection, many parents took their children to specialists for treatment. It is impossible to state just how many children received attention in this way, but if we can judge by what was done in a few districts, we are safe in saying one-third of the children needed attention.

In many cases, however, the Institutes took steps at once whereby the children might have their tonsils and adenoids removed. Four hundred children were operated upon at the clinics held. The advantages of these clinics are:—

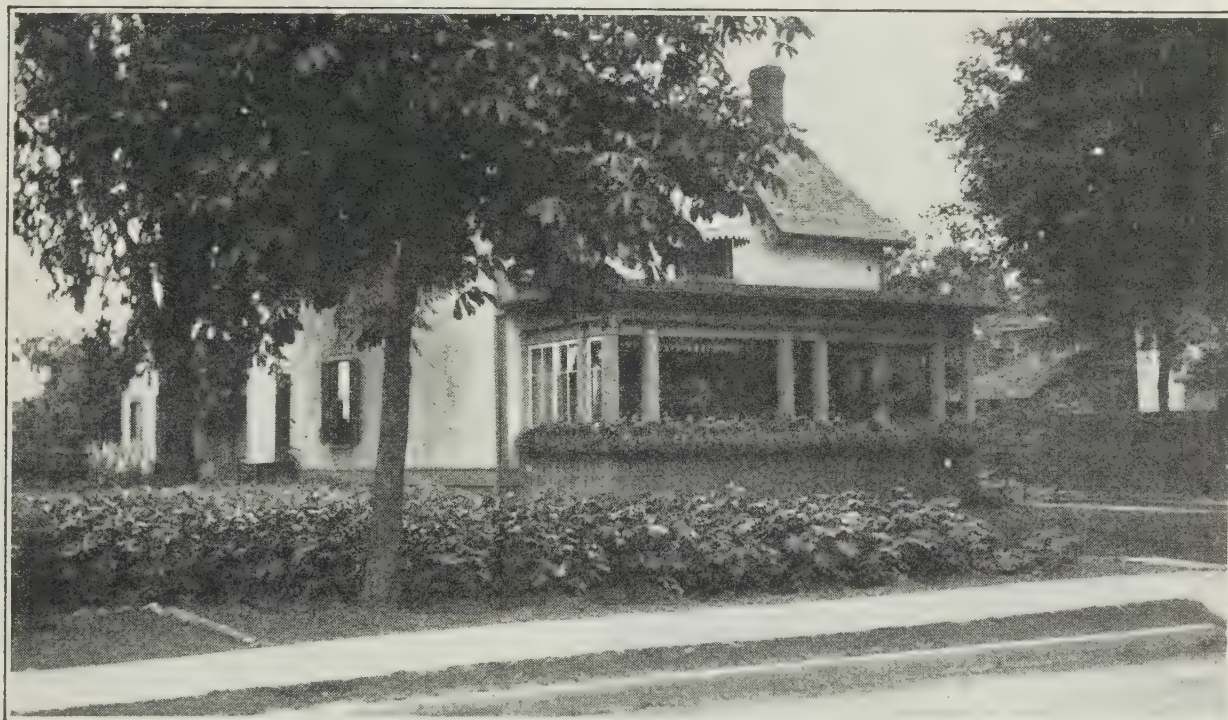
1. That several children at each clinic receive attention who would never receive it otherwise.
2. That expenses are lessened.
3. That children receive attention immediately.
4. That it removes much of the fear that arises in a child going up alone for an operation.

Not only were surgical clinics held, but three Institutes have held dental clinics and all the children in the school had their teeth attended to and temporary and permanent fillings were put in wherever necessary.

In addition to the clinics held, adjustments were made in many schools whereby the lighting, the heating, the seating and the decorating has been improved. The aim of the Institutes Branch in undertaking Medical Inspection has now been realized, in creating public opinion which has resulted in the Department of Education undertaking to complete the survey of the rural schools, employing doctors to do the inspection and nurses to do the follow-up work, and to encourage the employment of permanent medical health officers and nurses to carry on the work in each district.

After learning that the Department of Education was prepared to give assist-

ance to school boards installing an equipment in the school whereby Domestic Science might be taught, and a hot lunch served during the cold weather, and knowing that many children were found by inspection to be suffering from malnutrition, many Institutes have been the means of arousing the school boards to take immediate action in this matter. Practically all branches took advantage of the two packages of vegetable seeds sent out free by the Institutes Branch with the understanding that members taking this seed would furnish the schools which had the hot lunch equipment installed with vegetables in the fall for the purpose of making vegetable soups.



In war time, gardens replaced lawns around some of our best homes.

FOOD CONSERVATION

In connection with the campaign for Food Conservation, during 1918, the Institutes Branch of the Department co-operated with the Women's Institutes in eight counties in the provinces in establishing canning centres.

The out-put of seven of these centres totalled approximately 153,500 lbs., composed of canned fruit, jams, jellies, chicken, soup and pickles. The value of these goods was \$35,000. Three of these centres are being operated as community canning centres this year, with marked success.

In addition to placing demonstrators in charge of these centres, since last year the Institutes Branch complied with requests from over 40 branches for one or two-day canning demonstrations. Over 3,000 people received instruction in this way. Demonstrators in canning and war-time cookery were also in attendance at the Toronto, Ottawa, London exhibitions, and at the fall fairs at Renfrew, Napanee, Kingston, Windsor and Mitchell, and at the Home Garden Exhibition, held in the Arena, Toronto. It is impossible to estimate the number of people reached in this way.

DAIRY BRANCH

The work of Dairy Instruction, Butter Grading and the Dairy Schools was conducted along about the same lines as in previous years. The staff of 31 instructors kept in close touch with the factories and creameries throughout the

manufacturing season, resulting in a uniform high grade product of cheese in nearly all sections, and a marked improvement in the creamery butter.

Lecturers, mostly dairy instructors, attended a large number of factory meetings with a view to increasing the output of milk and encourage sanitary methods in milk production and care.

The season of 1918 was one of the most successful in the history of Ontario dairying. The production of milk continues to be the major operation on a great many of the best farms of the Province.



Typical dairy scene.

While the value of the dairy products in 1918 reached the maximum, the volume of cheese decreased somewhat, while the output of butter was above that of 1917.

The following table is based upon definite returns for cheese and butter from April to October inclusive, and a conservative estimate for the balance of the year; and for condensed milk, dairy butter, city milk supply, etc., the estimate is well within the actual output.

DAIRY STATISTICS FOR ONTARIO, 1918.

	Lbs.	Value.
Cheese	113,000,000	\$25,000,000
Butter	30,400,000	13,400,000
Condensed Milk and Milk Powder		6,500,000
City Milk Supply, Dairy Butter, Ice Cream, etc.		25,000,000
		<u>\$70,400,000</u>

In view of the unfavorable climatic conditions, especially in Eastern Ontario, and the scarcity of efficient labor, the dairy farmers of the Province are to be

complimented on the splendid results. They responded nobly to the call for a large production for war time needs.

The price for dairy products of all classes in 1918 were considerably above the 1917 quotations which were the highest recorded for Canada up to that time.

The average price for cheese was 22½ cents per pound, a fraction above one cent greater in 1917, while butter sold at an average price of 44 cents per pound, an advance of about 4½ cents for 1917.

Northern Ontario continues to develop her dairy industry and will no doubt soon add materially to the exportable output of the province. There are 22 cheese factories and three creameries in the district surrounding Sudbury.

That the dairymen have confidence in the future of the industry is evidenced by large sums expended in keeping the plants in good repair and installing up-to-date machinery. About \$30,000 has been spent in new plants, while \$191,700 was expended on repairs and new machinery in cheese factories, and \$122,600 on the creameries during 1918.

BUTTER MAKING

Ontario now has 167 creameries with 46,000 patrons and is able to contribute her share to the Dominion's butter exports. There was an improvement in the quality of butter in 1918, due in a large measure to the general application of scientific knowledge of the process of manufacture, particularly the increased use of pasteurizers. The methods of cooling and handling cream are being improved, but uniform high quality will not be possible until a general system of grading the cream and butter is adopted.

Butter grading, first undertaken on a systematic plan in 1917, was continued along about the same lines for 1918. A few creameries continue sending samples to the Grading Station throughout the winter. 31 creameries took advantage of the grading service during the season of 1918. 3,854 samples were graded, 78 per cent. being placed in grade "1," i.e., scoring 92 per cent. or over.

Butter grading has demonstrated that many of the creameries of Ontario will be compelled to improve the quality of their output if they are to take advantage of the export trade. On the other hand, a number of the leaders in the industry are already in a strong position to compete successfully in the markets of the world.

CHEESE

Considering the difficulty in securing efficient labor both in the factories and on the farms, the results in volume and quality of cheese was very satisfactory. Many of the makers had enlisted and others were attracted by higher wages in other lines. The number of cows from which milk was delivered for cheese making purposes decreased by something over 5,000, due largely to the demand for condensed milk and other similar enterprizes. With the exception of two or three weeks during the hottest portion of the season the quality of the cheese was well maintained.

There was a marked improvement in the condition of the milk delivered at the factories. The use of the sediment test has been an important factor in bringing about this result. 130 factories paid for milk on the basis of the butter fat content, while 111 pasteurized the whey.

The high price of butter has induced a large number of factories to undertake the manufacture of whey butter. 196 factories manufactured butter, while 63 separated the cream from the whey and shipped the product to be manufactured elsewhere.

AGRICULTURAL REPRESENTATIVES

During the last session of the Legislature, an Act was passed making provision for the appointment of Agricultural Representatives, which title now supersedes that of District Representative. The new name is more in keeping with the nature of the work undertaken. The outstanding feature of the activities of the Agricultural Representatives during the past season was work done more or less directly connected with the increased production of essential food stuffs, such as putting farmers in touch with the source of good seed, aiding in the distribution of some 50,000 bushels of spring wheat, encouraging the farmers to add to the number of sows kept on their farms for breeding purposes through the Bacon Hog Campaign, assisting in the Farm Help Campaign and generally supervising the work of the farm tractors in their respective counties.

Never before have the Representatives had so many visitors to their offices, telephone calls and letters seeking information along various lines of farm work as they have during the past year. In fact, during the war their offices were more or less a clearing house for all agricultural problems, and for many others.



Showing the interest of the boys and girls when the agricultural representative arrives in the spring with the school fair seeds and eggs.

A new office was opened at Clinton, in Huron County, last March, which now makes a total of 47 Agricultural Representatives in as many counties or districts of the Province.

RURAL SCHOOL FAIRS

School Fairs create in the boy and girl a greater love for farm work, and are a big factor in bringing the school work in closer touch with the home life of the pupil. The movement has secured a strong hold on the community and is gaining in popularity.

They have registered a marked improvement over former years, and particularly is this true of the quality of the exhibits. This may be attributed, first, to the pupils' experience in selecting produce for the fair and, secondly, to an increased

interest on the part of the teachers and parents. A special part of the programme on Fair Day has been set aside for the judges to give reasons for their placings. The desirable type in vegetables and the manner of preparing exhibits were pointed out and emphasized. This had a wonderful effect on the exhibits the following year, the quality being much superior and arrangement more attractive.

STATISTICS OF THE FAIRS

During the past season 307 fairs were held in the Province of Ontario, and 2,868 schools were included in the movement, with a total of 71,086 children taking part. This is an average of 9 schools for each fair and 25 pupils for each school. It is estimated 84,338 children and 88,908 adults attended the fairs, making a total of 173,246. The pupils had 66,613 home plots and made entries to the number of 115,531.

The Department of Agriculture purchased and distributed in small packages to the pupils the following quantities and varieties of seeds:

Oats	O.A.C. No. 72	82¾ bushels
	Banner	12 "
Barley	O.A.C. No. 21	57 "
Wheat	Marquis	42 "
Potatoes	Green Mountains	858 "
	Irish Cobbler	482 "
Field Peas	Early Britain	495 pounds
	Arthur	450 "
	Prince Albert	30 "
Garden Peas	Thomas Laxton	756 "
Mangels	Yellow Leviathan	4,240 packages
	Bruce's Giant	365 "
	Our Ideal	440 "
	Yellow Intermediate	560 "
	Mammoth Long Red	125 "
Turnips	Purple Top Swede	725 "
	Garton's Model	800 "
	Carter's Invicta	1,880 "
	Good Luck	430 "
	Garton's Keepwell	125 "
Beets	Detroit Dark Red	6,860 "
Carrots	Chantenay	8,120 "
Onions	Yellow Globe Danvers	6,910 "
Parsnips	Hollow Crown	3,920 "
Asters	Giant Comet	8,765 "
Sweet Peas	Giant Spencer	5,165 "
Phlox	Drummondii	4,295 "

Special precautions were taken to purchase the best quality of oats, barley, wheat and potatoes which could be obtained. This tended towards greater uniformity, and resulted in many farmers getting a start in seed of the highest quality of the best varieties.

DISTRIBUTION OF EGGS FOR HATCHING

There were 9,670 dozen Barred Plymouth Rock eggs, 140 dozen Rhode Island Red and 130 dozen White Wyandotte, or a total of 9,940 dozen eggs distributed to the pupils in the School Fair movement last spring.

CLASSES OF EXHIBITS

The classes of exhibits at the fair might be summed up as follows:

1. Products from home plots from seed supplied.
2. Poultry and Live Stock.

3. Collections of nature objects such as mounted weeds, weed seeds and insects—beneficial and injurious.
4. Manual Training and Household Science Work—cooking and sewing.
5. Collections of fruit.
6. Educational work, including essays, maps, drawing, writing, art, etc.
7. Miscellaneous and contests of various kinds.

THE DAY'S PROGRAMME

The programme for the day would be somewhat as follows:

Until 10.30 a.m. Placing of Exhibits; this work to be in charge of Teachers and Directors.

10.30-11.00 a.m. Judging calves, colts and lambs.

11.00-12.00 a.m. Live Stock Judging Contest and Girls' Knitting and Sewing Contests.

12.00-12.30 p.m. Lunch to be served in picnic style.

12.30-1.00 p.m. Address of Welcome—Public Speaking Contest.

1.00-1.30 p.m. School Parade.

1.30-3.00 p.m. Programme of Sports, Contests and Competitions.

THE PRIZE MONEY

The total prize money for each fair varied from \$40 to \$125, depending upon the number of schools taking part and the generosity of the trustee boards. All prize money is raised locally, the school sections, township and county councils, and public spirited persons, all contributing a share. No admission is charged and no entry fee is received.

The school fairs have been managed in the past by a Rural School Fair Association composed of representatives from each school with the Agricultural Representative as manager. The pupils get a splendid executive training and they are always ready for the several committee meetings which are held during the season.

During the past season, the greater part of the seeds and eggs were distributed through the mail by parcel post, or sent by express. In some sections, however, use was made of the motor, which always afforded an opportunity for the Agricultural Representative to visit the school and give a little talk to the pupils on school fair work. The system of sending eggs by parcel post has been endorsed by practically all our Representatives. Some four or five reported the hatch not as satisfactory in their county, due no doubt to carelessness in handling by rural mail carriers.

THE PATRIOTIC FUND

"Children's Tag Day" at the fairs this past fall resulted in the sale of about 60,000 patriotic buttons, with a total of \$3,037.40 collected for the Rural School Fair Patriotic Fund. This money will be used for some special and worthy object which will be decided upon at a later date.

SPECIAL FEATURES

A few new features, particularly in regard to contests on Fair Day, were introduced at some of the fairs. These included a boys' car-driving contest; a spelling match, using words in relation to agriculture and home economics; a fancy drill; solo and chorus singing competitions; baby contest; boys' carpenter contest; public speaking contest; live stock judging competition; potato peeling for girls; darning on socks for girls; putting patch on sole of boot for boys; girls' knitting and sewing competitions, and a Babylonian Health contest. An innovation at one fair was a prize given for the best decorated float that illustrated some phase of agricultural production, food conservation, or similar subject. In the school parade the float idea was modified somewhat, and pupils were permitted to arrange themselves in any formation which would help depict their subject.



School parade at the school fair.

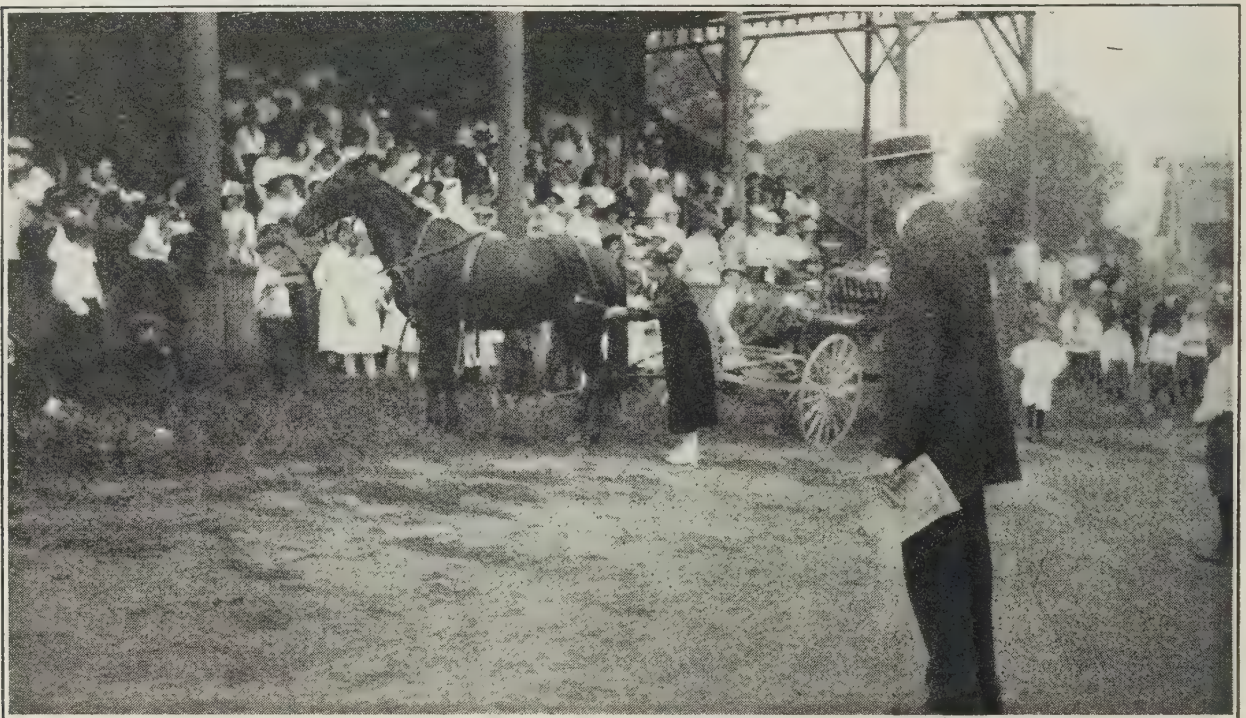
The Representative in Welland County introduced the Agricultural Examination in the School Fairs for boys and girls in or above the Junior 3rd class. Questions were prepared and sent to the schools before the summer holidays. The list of questions for girls and boys was as follows:

LIST OF QUESTIONS FOR GIRLS.

1. Give recipe and full details for the preparation of Oatmeal Porridge.
2. All the available wheat is urgently required for military purposes at the Front: Give some suggestions as to how we can substitute other foods for it. Give two recipes in which this substitution is made.
3. Write a short article on the various methods of preparing fish.
4. Give directions for making cottage cheese.
5. Give recipe for pickling onions, cucumbers, or green tomatoes.
6. Write an article on "Flies as Carriers of Disease" suggesting methods of control.
7. Be prepared to write an article on the care of Roses.
8. Offer six suggestions for the improvement of your school or school grounds.
9. Write a short article on "The Making of Butter on the Farm."
10. How can the following insects be controlled: Potato Beetle, Rose Chafer, Worms in Apple, Cabbage Worm.
11. Be prepared to identify the following weeds: Ox-eye Daisy, Common Mustard, Broad Leaved Plantain, Ribgrass, Wild Oat, Chess, Twitch Grass.

LIST OF QUESTIONS FOR BOYS.

1. Give reasons why "Germination tests" should be made on all grains before planting.
2. Explain in detail a simple method of making this test.
3. Describe in detail the methods used in preventing: (1) Late Blight of potatoes.
- (2) Smut in oats. (3) Potato scab.
4. Give reasons for plowing the land in the fall.
5. (a) Name one variety of each of the following grains which are recommended as desirable varieties. (1) Oats. (2) Spring Wheat. (3) Fall Wheat. (4) Barley. (5) Corn for Ensilage. (b) How much of each should be sown per acre.
6. Is it true that Agriculture is the basis of prosperity in any country? Show in a brief essay why this is so.
7. A farmer has a silo 30 feet high and 12 feet in diameter (inside measurement). How many tons of silage will it hold if one cubic foot contains 85 pounds?
8. If a cow consumes 30 pounds of silage per day how long will this quantity last a herd of 18 cows?
9. A farmer wishes to know how much profit he makes on a field of oats and makes the following notes on the season's operations:



Competition for young girls at school fair in hitching horse.

Size of field, 10 acres. Time required to plow with man and team, 6 days. Time required to disc, harrow, sow, etc., with man and team, 5 days. Seed required, 25 bushels costing \$1.10 per bus., cutting and harvesting 2 men and 1 team, 2 days, threshing 5c. per bus. Yield, 40 bus. per acre. Oats sold for 85c. per bus.

Find out how much profit this farmer made on each acre of oats.

NOTE.—Charge 20c. per hour for man labor and 10c. per hour for horse labor.

10. Give a ration for laying hens which does not contain wheat.
11. Give six suggestions as to how your school or school grounds might be improved.

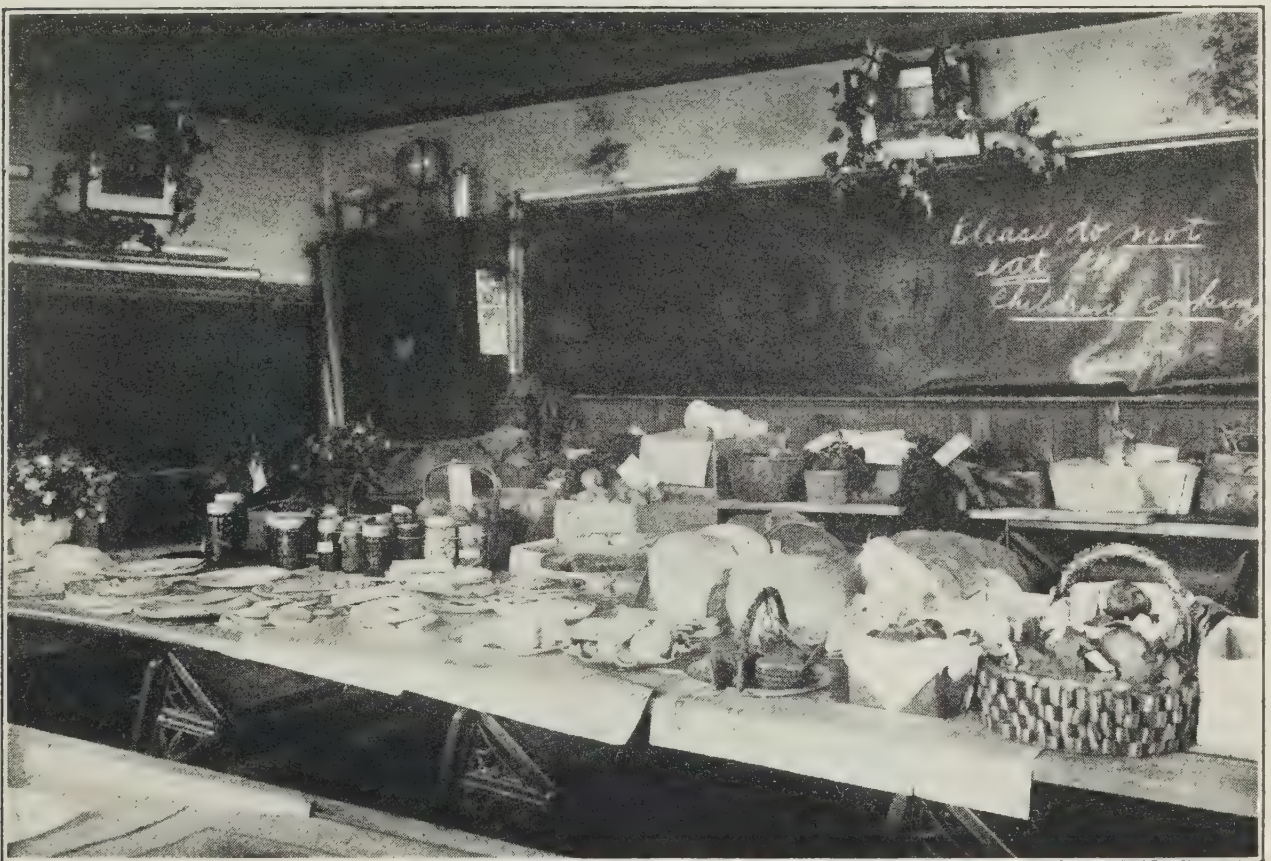
Along with these examination questions a number of bulletins were sent to each school to be kept in the library and to be used as a reference in looking up answers to the questions submitted. The examination was held at each school prior to the Fair under the supervision of the teacher and the papers were marked by the judge. Reports would indicate that it is an excellent way of giving the pupils an opportunity of getting definite information on certain agricultural subjects.

INSPECTION OF THE PLOTS

Inspection of the plots was again discontinued by the Department, but in the majority of school fair districts arrangements were made to have this work done voluntarily by someone locally. The Trustee Board usually made arrangements for some capable person in the locality to do the judging, the Representative supplying score cards giving instructions and finally paying the prizes awarded.

DISTRICT FAIRS

During the past season there were four district school fairs held in the province, where the winners at the smaller fairs were brought together. These were held in the counties of Oxford and Wentworth and the districts of Algoma and Manitoulin Island. Generally speaking prizes were offered by the Agricultural



A fine display of children's cooking.

Society where the fair was held in the central part of the county or district. The 1st, 2nd and 3rd prize exhibits from the different school fairs in the county competed at the district fair.

Reports would indicate a great interest was taken in the larger fair and the quality of the exhibits was in many cases superior to those exhibited at the regular fall fair. The greatest difficulty in staging a fair of this nature is that most of the school fairs are held at a considerable distance from where the district fair is held, and transportation facilities in some counties are not of the best. The idea of the district fair is to be commended, for it stimulates the boys and girls to do their best in caring for their plots, in order to produce the best, and preparing their exhibits for competition, because by taking a prize at the district fair they are winning greater honors than by taking a prize at their local school fairs.

HOME DEMONSTRATION WORK

As an experiment a graduate of Macdonald Institute in Domestic Science was appointed to carry on home demonstration work in Peel County under the general direction of the agricultural representative. This was the first appointment of the kind made in Canada. It is a service for the women and girls and homes of the county. It was carried on in co-operation with the Women's Institute and information was disseminated on cooking and sewing, labor saving devices, better health and community welfare. In keeping with war needs special emphasis was laid on food conservation. That the work was carried on energetically the following Statistical Summary of six months' work will show:

Letters received	231
Letters written	345
Circular letters	668
Phone calls	359
Office calls	381
Bulletins distributed	1,299
Newspaper articles	221
Meetings addressed	76
Attendance	3,045
School visits	35
Home visits	106
Half days in office	201

One of the original and interesting features of the work was a girls' canning competition, the first of its kind ever held. The competition was open to teams of four girls, selected from the Junior Women's Institutes and Girls' Clubs in the county. Teams entered from Alton, Brampton, Caledon, Ebenezer and Streetsville. The work was organized in May and June, and the competition held at the county fair, in September. In the meantime frequent classes were held at which the home demonstrator was present. At the fair, they were required to can in competition two or more kinds of fruit and vegetables and make an exhibit of at least twelve imperial pints of fruit and vegetables canned at home, the prizes being on the basis of 75 points for the public canning and 25 points for the home canning. The preparations and the competition developed great interest and enthusiasm and proved of much educational value.

Closely associated with the work of the Home Demonstrator was the health work. A complete inspection was made of the schools of the province by a competent lady doctor, supplied by the Institutes Branch. In all 77 schools were covered including 2,100 pupils. A report was made as to the lighting, heating, seating and ventilation of the school buildings as well as the health of the pupils. A great many physical defects were found, including weak eyes, decayed teeth, defective tonsils, etc. Public Clinics were afterwards held and large numbers of children treated. The inspection work was also followed up by the appointment of a nurse to visit the schools, instruct the pupils and hold meetings of the mothers. All this work had the financial and personal backing of Municipal Councils and local people generally and proved very useful and popular.

CHAMPIONSHIP JUDGING CONTEST

The special feature of the district fair in Oxford County was the Championship Live Stock Judging Competition, where eight teams of three boys competed for the honors. The boys showed evidence of having had considerable coaching in all classes of live stock, and the very fact of their competing would give them added interest in the live stock on the home farm. The prize for the winning

team was a silver cup and a pure-bred Yorkshire pig to each of the boys. The boys in the second team are to be given one hundred Barred Plymouth Rock eggs for hatching in the spring and the boys in the third prize team fifty Barred Rock eggs.

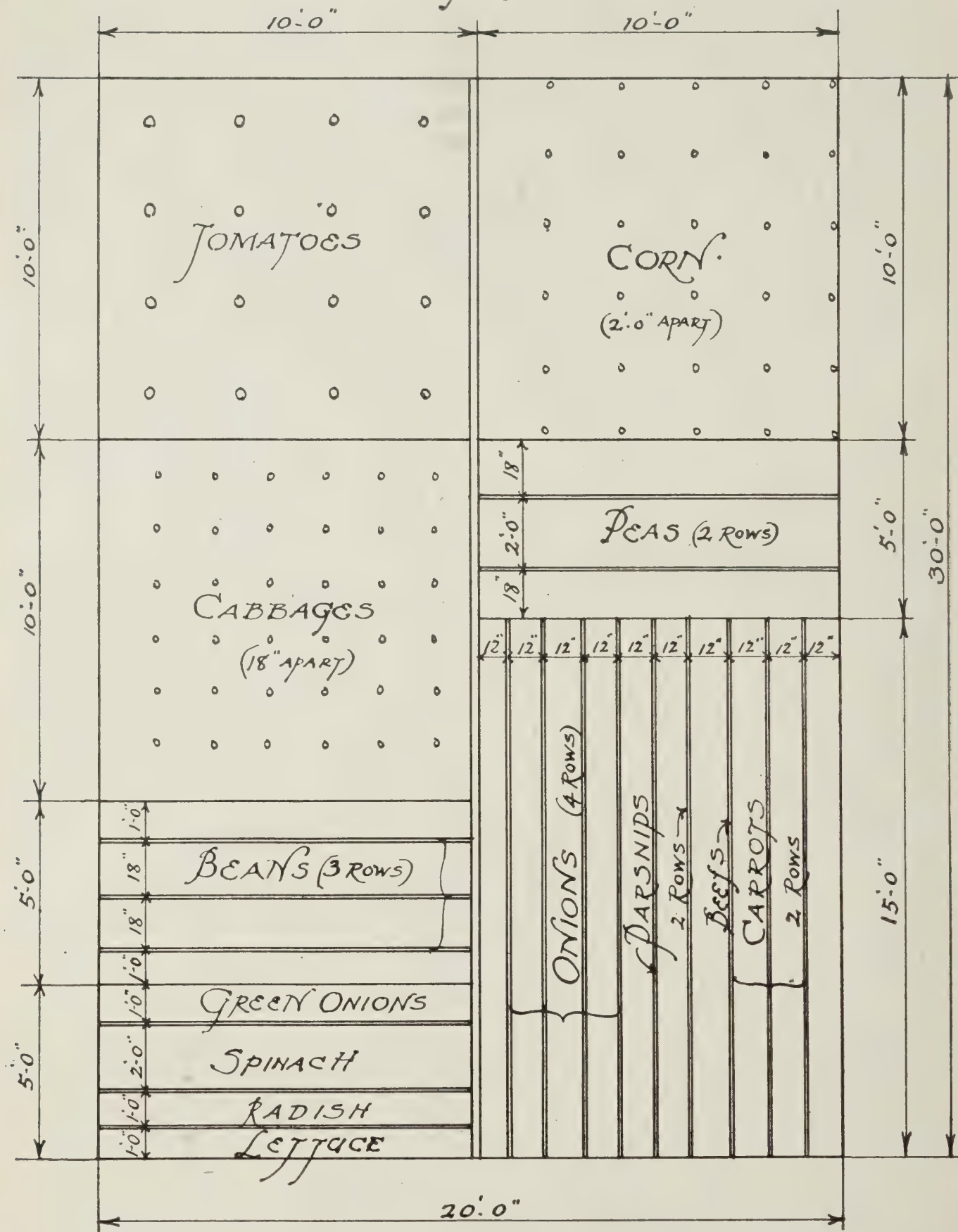
POULTRY BREEDING STATIONS

The eggs distributed to the pupils through the School Fair movement were obtained very largely from Poultry Breeding Stations which were established in each county by the Agricultural Representatives. A small quantity was, however, gotten from the Poultry Department at the Ontario Agricultural College, Guelph.

The birds in the breeding stations are inspected and the flock culled in order to eliminate the non-producers. The accompanying table shows the number of Breeding Stations in each County together with the number of hens and pullets and cockerels. The number of dozens obtained for school fair distribution as well as the quantity purchased by farmers in the district is also given :

County	Number of Poultry Breeding Stations	Number of hens and pullets	Number of cockerels	Number of dozen eggs for Rural School Fair distribution	Number of dozen eggs purchased by farmers
Algoma.....	5	405	16	205	.....
Brant.....	1	50	4	82	28
Bruce.....	2	250	8	161	.....
Carleton.....	3	270	9	160	.....
Dufferin.....	1	100	4	160	50
Dundas.....	3	155	12	234	.....
Durham.....	7	375	25	295	.....
Elgin.....	1	60	3	30	40
Essex.....	3	300	17	192½	186
Frontenac.....	2	155	8	135	52½
Glengarry.....	2	80	6	111	41
Grenville.....	8	630	30	224	117
Grey.....	3	240	12	212	300
Haldimand.....	2	125	6	257	49
Halton.....	2	160	5	134	60
Kenora.....	3	246	8	119	108
Kent.....	4	425	13	400	.....
Lambton.....	4	300	12	335	.....
Lanark.....	2	160	4	106	.....
Leeds.....	9	625	25	224	415
Middlesex.....	1	95	7	198	49
Norfolk.....	2	180	10	262	7
Northumberland.....	4	.....	.....	186	.....
Peel.....	2	135	10	211	50
Ontario.....	4	280	12	344	.....
Oxford.....	3	.....	.....	287	.....
Peterborough.....	2	170	9	172	21
Rainy River.....	3	64	4	81	5
Renfrew.....	5	198	12	179	38
Simcoe.....	3	.....	.....	.....	.....
Port Arthur.....	2	90	6	144	60
Temiskaming.....	2	72	3	134	.....
Waterloo.....	3	200	8	253	.....
Welland.....	2	.....	.....	128	.....
Wentworth.....	3	.....	.....	344	.....
York.....	2	.....	.....	.....	.....

REAR of GARDEN.



FRONT of GARDEN.

HOME GARDEN CONTEST

The Home Garden Contest serves as a connecting link for the boys and girls from the time they leave school fair work until they are ready to take up the Agricultural and Domestic Science Short Courses later. There were 70 Home Garden Contests including 1,750 pupils taking part. On adjoining page is a plan of the garden which was given to each contestant.

Suggestions on the preparation of the soil, growing and cultivation of the crops were included in the small pamphlet along with the plan.

All plots were inspected by the Agricultural Representative once or twice during the summer and prizes were awarded the gardens scoring the highest.

It was found in many instances the contestants' family depended very largely upon the Home Garden plot for their summer vegetables and many parents expressed surprise at the amount of vegetables it was possible to raise from a small area of land. Some of the pupils sold several dollars worth of vegetables from their gardens beside what the family used.

COURSES IN AGRICULTURE

Perhaps the outstanding feature of the representative service is the Course in Agriculture of four to six weeks' duration for farmers' sons conducted during the winter months. The war had a great effect on the attendance, there being only 593 students enrolled in the 32 courses held throughout the Province.

Every effort is made to make these courses as practical as possible. Visits are made to stock farms for practice in the judging of live stock, and to orchards for demonstrations in pruning, grafting and spraying. Practical work is given in milk and cream testing, judging grains, potatoes and clover seeds and making purity and germination tests of clovers and grains.

A number of the Representatives bring their classes to Toronto where they are given an opportunity to inspect stock yards, packing plants, fertilizer factories, dairy plants and the Parliament Buildings.

Besides the regular lectures given in the class room by the Representative and his assistant, the Department has supplied what might be termed Special Lecturers to discuss such subjects as Horses and Veterinary Science, Beef and Dairy Cattle, Sheep, Swine, Poultry, Beekeeping, Fruit Growing, Marketing and Co-operation, Soils and Drainage, Community Leadership and Farm Management. The men sent out are specialists in their particular line and their services are much appreciated by the members of the various classes.

JUNIOR FARMERS' IMPROVEMENT ASSOCIATIONS

Owing to the number of young men who were called under the Military Service Act, the Junior Farmers' Improvement Associations have not carried on as systematic work as would otherwise have been the case. In spite of this handicap there are 89 Junior Farmers' Improvement Associations with a membership of 2,187.

As intimated in previous reports the Junior Farmers' Improvement Association is an outgrowth of the Course in Agriculture and as such is designed to keep up the interest of the young men in the community in better agriculture.

Besides the regular meetings held during the winter months the members take part in the various profit competitions conducted by the Department, conduct

demonstrations and experiments either with field crops or live stock, arrange educational exhibits at fall fairs, hold picnics and conduct auto tours to visit places of interest. Some associations have purchased seed co-operatively.



Farm boys taking a four-weeks' Agricultural Course near home.

A number of County Junior Farmers' Improvement Associations have been organized during the year. The object is to stimulate interest amongst the various local associations by having inter-class debates, live stock judging competitions, public speaking contests and a seed fair.

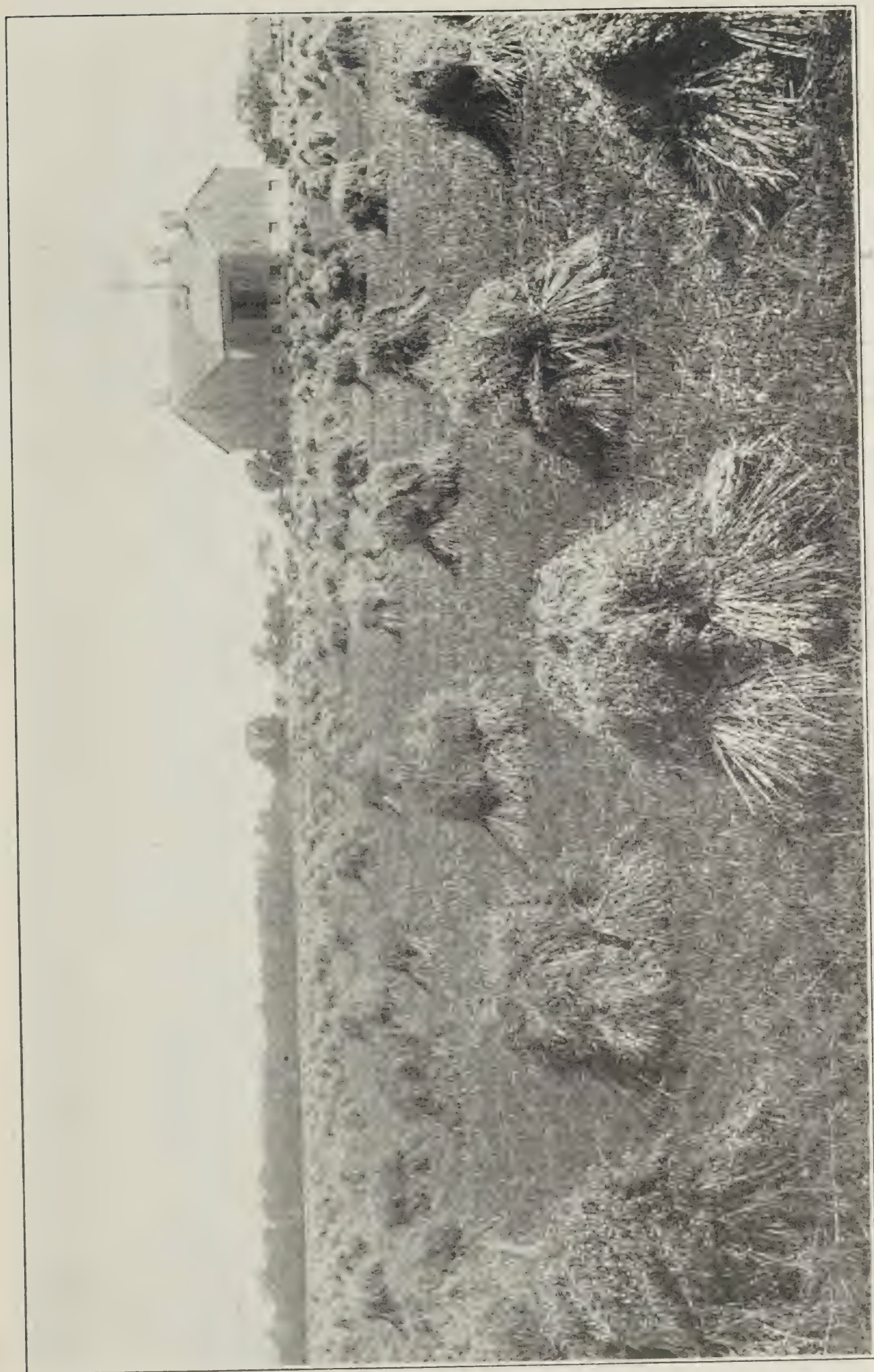
JUNIOR FARMERS' PLOWING COMPETITION

Plowing Competitions for Junior Farmers have become very popular. These contests are conducted on the home farm or on the farm where the contestant is working. In some counties the contestants had the privilege of plowing any kind of land, with any kind of plow, but had to plow at least five acres. In other counties there were two classes, one in sod and the other in stubble, and the contestants had to use single plows with skimmers or jointers and five acres in one block had to be plowed. Prizes were secured locally but the Department furnished judges.

Contests were conducted in the following counties:

	No. of Competitions	No. of Contestants
Brant	2	8
Dundas	2	14
Grenville	2	16
Halton	1	15
Peterborough	1	15
Waterloo	2	24
Welland and Lincoln	1	12
Wellington	1	6

These competitions were organized and supervised by the Agricultural Representatives in their respective counties.



A fine Ontario farm scene.

PROFIT COMPETITIONS CONDUCTED BY JUNIOR FARMERS

The various profit competitions such as Feeding Hogs, Field Crops, Production of Milk, and Feeding of Calves and marketing them at the stage generally known as baby beef, have been carried on as usual by the Agricultural Representatives.

These competitions were open to young men, farmers' sons, under 30 years of age, the prize being a free two weeks' course in Stock and Seed Judging, Poultry Raising, Horticulture, Farm Dairy, Beekeeping or Farm Power, conducted at the Ontario Agricultural College at Guelph, transportation to Guelph and return and board and lodging while there.

All the competitions started off in the spring of the year under fairly favorable circumstances but owing to war and labor conditions a number of the contestants were forced to drop out before the competitions were concluded.

The prize winners taking the Courses at the Ontario Agricultural College this Winter are as follows:

Stock and Seed Judging, January 14-24	29
Beekeeping, January 14-24	1
Poultry Raising, January 14-24	1
Farm Dairying, January 21-31	1
Farm Power, January 27 to February 7	7

ACRE PROFIT COMPETITIONS

There were 18 contests during the past season with different crops as follows:

Potatoes	4	Sugar Beets	1
Beans	1	Mangels	1
Oats	4	Wheat	6
Corn for Seed	1		

The prize was awarded to the young man showing the largest net profit per acre. Where eight or more contestants finished in a competition two men were sent to Guelph.

The competition was confined to a field of any size but not less than one acre, except in the case of oats, barley and wheat, when the area under crop was at least five acres. This enabled the contestants to enter the Standing Field Competitions conducted under the auspices of the Agricultural Societies.

In estimating the cost of production \$5.00 per acre was allowed for rent of land, \$2.00 per acre for plowing, 15c. per hour for man labor and 10c. per hour for horse labor. Nothing was allowed for interest on investment or for depreciation in value of the implements used in cultivating the land or harvesting the crop.

A uniform price was placed on all seed used in the spring as follows:

Turnips	\$1.50 per lb.
Mangels	1.00 "
Corn	4.75 per bus.
Beans	9.00 "
Potatoes	1.35 "
Wheat	2.50 "
Barley	1.75 "
Oats	1.10 "

The following is a list of the winners, giving results as to cost of production and net profit per acre with various crops:

WINNERS IN ACRE PROFIT COMPETITION, 1918

OATS

(80c. per bus.)

County	Winner	Yield (bus.)	Value	Cost Production	Profit
Lambton.....	Russell Clark, R.R. No.1, Alvinston Clay loam, following oats and barley, farmed 15 years, Sil- vermine.	79	\$ c. 63 20	\$ c. 14 61	\$ c. 48 59— 1st
Essex	W. G. Sellars, Amherstburg Clay, following corn, farmed 35 years, formalin, O.A.C. 72.	76 $\frac{1}{4}$	61 00	13 93	47 07—2nd
Norfolk.....	Leo. Challand, R.R. 5, Simcoe..... Clay, following corn and potatoes, farmed 45 years. O.A.C. 72.	70 $\frac{1}{5}$	56 16	16 06	40 10—3rd
Lincoln.....	Gordon J. Robins, R.R. No. 3..... Clay, following oats, farmed 45 years, O.A.C. 72.	70 $\frac{1}{8}$	56 27	17 27	39 00—4th

CORN FOR SEED

(\$3.50 per bus.)

Essex	Howard Sellars, R.R. No. 1, Kings- ville Clay and sand, following corn, farmed 6 years, Wisconsin No. 7.	bus. 27	\$ c. 94 50	\$ c. 14 10	\$ c. 80 40
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SUGAR BEETS

(\$10.00 per ton)

Lambton	Cecil Campbell, R.R. No. 4, Alvin- ston Clayloam, following barley, farmed 35 years.	tons 18 $\frac{1}{2}$	\$ c. 185 00	\$ c. 21 88	\$ c. 163 12
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BEANS

(\$7.50 per bus.)

Grenville.....	Earl Throop, R.R. 2, Prescott Gravel, following corn, 15 loads manure.	bus. 31 $\frac{1}{2}$	\$ c. 236 25	\$ c. 33 45	\$ c. 202 80
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POTATOES
(\$1.20 per bus.)

County	Winner	Yield	Value	Cost Production	Profit
		bus.	\$ c.	\$ c.	\$ c.
Thunder Bay...	Jas. Taylor, Port Arthur Clay loam, following potatoes, farmed 3 years, 15 loads man- ure, Irish Cobbler.	283	339 60	49 80	289 80—1st.
Rainy River	Wm. Draycott, Stratton Sandy loam, following wheat, farmed 9 years, 8 loads man- ure, Eureka.	284	340 80	63 05	287 75—2nd.
Middlesex	Geo. A. Pack, R.R. 1, Byron..... Clay loam, following clover, farmed 30 years, 17 loads manure, Carman.	236	283 20	46 60	236 60—3rd.
Norfolk	Bruce Wilson, Wilsonville..... Sand loam, following alfalfa, farmed 55 years, Paris Green, Rural New Yorker.	135 37 lbs.	162 74	33 72	129 02—4th.

MANGELS
(15c. per bus.)

Durham	Harry Jose, Newcastle Clay loam, following fall wheat, farmed 75 years, Mammoth Long Red.	bus. 785	\$ c. 117 75	\$ c. 49 70	\$ c. 68 05
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WHEAT
(\$2.15 per bus.)

Manitoulin.....	Allan Fraser, Gore Bay Clay loam, following corn, farmed 40 years, formalin, Marquis.	bus. 47	\$ c. 101 05	\$ c. 19 70	\$ c. 81 35—1st.
York	Allan F. Balsdon, R.R. 2, Mark- ham..... Clay loam, following hoed crop, farmed 40 years, Marquis.	45	96 75	19 30	77 45—2nd.
Durham	L. Stanley Chapman, Orono, R.R. No. 1..... Clay loam, following corn, farmed 75 years, formalin, Prince Im- perial.	44½	96 03	20 26	75 77—3rd.
Grenville.....	Wilbert A. Davidson, R.R. 4, Kemptville Clay loam, following hay, farmed 40 years, Marquis.	33½	71 75	14 93	56 82—4th.
Renfrew	Robt. L. Mason, R.R. 3, Renfrew.. Clay loam, following hay, farmed about 20 years, Marquis.	28	60 20	14 15	45 05—5th.
Dundas.....	A. A. Morrison, Wales..... Gravel loam, following corn, farmed years, Marquis.	25½	54 47	16 87	37 60—6th.

FEEDING HOGS FOR PROFIT COMPETITIONS

All told there were 11 contests conducted in as many counties and districts of the Province.

The winner was selected on the following basis:—

- (a) 50 points for the highest net profit per cwt. of grain.
- (b) 25 points for type and finish, this being done with the bacon hog score card.
- (c) 25 points for the best kept records and most comprehensive report.

Six entries were required before a competition could be conducted and two men were sent to Guelph provided eight men finished.

Each contestant had to feed a pen of hogs containing not less than four. Hogs were weaned and weighed at six weeks of age, at which time the record work began. An accurate account was kept of the kind and amount of food consumed every four weeks in addition to the final feeding. Credit was given contestants who weighed their hogs at the end of every four weeks, though this was not compulsory. Hogs were to be finished any time within 28 weeks of age when they had attained a weight between 180 and 220 lbs. One point was deducted for each 5 lbs. or fraction of 5 lbs. under or over these weights.

Feed was valued as follows:—

Ground Oats	\$55.00 per ton
“ Barley	70.00 “
“ Peas	110.00 “
“ Rye	90.00 “
“ Wheat	65.00 “
“ Corn	80.00 “
Corn on the Cob	75.00 “
Bran	35.50 “
Low-grade Flour or Red Dog	75.00 “
Shorts or Middlings	40.50 “
Tankage	85.00 “
Oil Cake	65.00 “
Green Feed	2.00 “
Skim Milk	5.00 “
Butter Milk	5.00 “
Whey	3.00 “
Pasture	1.00 per hog

The profit was estimated by valuing the average gain in weight per hog at 18¾c. per lb.

Readers will note that the value of the hog at 6 weeks of age was not taken into consideration at all. The determining factor being the average net profit per cwt. of grain from six weeks of age, when the feeding period and record work commenced. The results are given in the tabulated statement following:

WINNERS IN FEEDING HOGS FOR PROFIT COMPETITION

County and Winner	Length of feeding period	Av. cost of feed per hog	Av. wt. of hogs live wt.	Av. gain in wt. from 6 weeks	Value per hog of gain in wt.	Av. net profit per hog	Per cwt. of gain
Durham— J. A. Hickson, No. 1 Janetville. Yorkshire Pure Bred.	May 31– Sept. 20	\$ c. 7 50	lbs. 230	lbs. 205	\$ c. 38 43	\$ c. 30 93	\$ c. 15 08
Essex— L. Squire, No. 2 Amherstburg. Poland China.	May 13– Oct. 14	5 94 $\frac{2}{3}$	184	158	29 62	23 68	14 98
Grenville— T. R. Beckett, No. 5 Kemptville. Grade Yorkshire.	April 17– Aug. 29	10 50	209	186	34 87	24 37	13 10
Manitoulin— Milton VanEvery, Meldrum Bay. Pure Bred Berkshire.	May 30– Sept. 7	7 57	143	120	22 50	14 93	12 44
Lincoln— K. Comfort, No. 1 St. Anns. Pure Bred Yorkshire.	May 21– Oct. 17	11 58	198	178	33 38	21 80	12 24
Dundas— C. F. Marshall, South Mountain. Pure Bred Yorkshire.	April 26– Sept. 25	16 19	209 $\frac{2}{5}$	189 $\frac{2}{5}$	35 51 $\frac{1}{4}$	19 32 $\frac{1}{4}$	10 20
Waterloo— L. Weber, No. 1 Waterloo. Yorkshire.	April. 16– Sept. 23	14 39	187 $\frac{1}{2}$	164	30 75	16 36	9 97
Peel— Cecil J. McCort, No. 3 Bolton. Yorkshire-Berkshire Cross	June 20– Nov. 21	15 24	188	160	30 00	14 76	9 23
Lennox and Addington— A. T. Empey, No. 4 Napanee. Yorkshire.	April 22 Sept. 12	17 17	200 $\frac{1}{4}$	174 $\frac{3}{4}$	32 77	15 60	3 92
Oxford— G. Kaufman, No. 4 Bright. Yorkshire.	April 1– Aug. 3	10 78	198 $\frac{1}{2}$	166 $\frac{1}{4}$	31 17	13 27	7 98

DAIRY PROFIT COMPETITION

The Dairy Profit Competition is one of the most interesting of all the competitions conducted and a close study reveals some very valuable data. Unfortunately a number of young men who commenced the record work last spring had to drop out owing to the war. There were only 4 contests in the Province during the past season.

The prize was awarded to the young man showing the largest net profit from one heifer, the competition extending over a period of 7 months. Only heifers

freshening for the first time were used and such heifers had to be under 36 months of age at time of freshening.

Each contestant had to take a two ounce sample of milk (one ounce in a.m. and one ounce in p.m.) three times each month and forward samples to the Representative's office where they were tested for butter fat. Milk had to be weighed and recorded at each milking, and an accurate record had to be kept of the kind and amount of feed consumed. The milk was valued on the following basis:—

- First three months, butter fat valued at 50c. per lb.
- Second three months, butter fat valued at 53c. per lb.
- Last month, butter fat valued at 55c. per lb.
- The skim milk was valued at 20c. per cwt.
- The feed was valued as follows:—



Sheep judging class at the school fair.

Ground Oats	\$55.00 per ton
Ground Barley	70.00 "
Bran	35.00 "
Shorts and Middlings	40.00 "
Gluten Feed	60.00 "
Oil Cake	65.00 "
Cottonseed Meal	60.00 "
Hay and Clover	12.00 "
Alfalfa	14.00 "
Timothy and mixed Hay	10.00 "
Silage	4.00 "
Roots	3.50 "
Straw	6.00 "
Pasture	1.00 per month

The following are the results in detail together with the breed of heifer winning in each county contest:—

DAIRY PROFIT COMPETITION, 1918

County and Winner	Value of feed	Milk	Fat	Fat	Value	Skim Milk	Value	Net Profit
Dundas-- Lloyd Poapst, Northfield Station. Holstein.	\$ c.	lbs.	%	lbs.	\$ c.	lbs.	\$ c.	\$ c.
	25 31	5,337	4.3	232 99	119 36	5,123.49	10 24	104 29
Middlesex-- Ross Sadler, No. 2 Lambeth. Holstein Grade.	65 44	7,106	3.97	281.77	145 66	6,831.6	13 62	93 85
Lennox & Addington-- Percy Vine, Napanee. Holstein.	7 00	4,544	4.07	177.00	91 40	4,366.	8 73	93 13
Grenville-- Elmer White, No. 3 Prescott. Holstein.	11.59	4,830	3.8	176.1	91 18	4,655.	9 29	88 88

* BABY BEEF COMPETITION

In the Baby Beef Competition the prize was awarded to the boys or young men producing the best steer regardless of cost of production. In order to gather data, an accurate account had to be kept of the kind and amount of feed consumed during the feeding period. The calves in this competition were born on or after September 1st, 1917. The steers were judged in November last by the Agricultural Representatives and the winners had the privilege of competing in a special class for Baby Beef at the Winter Fair held at Guelph in December.

In estimating the profit the initial value of the steer calf was placed at \$5.00 and the value of the steer when marketed at 15c. per lb., live weight. It might be interesting to know that some of the baby beef steers were exhibited at the Toronto Fat Stock Show and sold at auction sale from 18c. to 21c. per lb. live weight. Feed consumed during the period was estimated as follows:—

Ground Oats	\$38.00 per ton
“ Barley	40.00 “
“ Peas	60.00 “
“ Rye	38.00 “
“ Wheat	50.00 “
“ Corn	35.00 “
Bran	30.00 “
Low-grade Flour or Red Dog	36.00 “
Shorts or Middlings	30.00 “
Tankage	50.00 “
Oil Cake	50.00 “
Green Feed	2.00 “
Skim Milk	5.00 “
New Milk	28.00 “
Whey	3.00 “
Pasture .....	.50 per month
Nursing Cow	6.00 “
Hay	10.00 per ton
Straw	6.00 “
Silage	3.00 “

The following tabulated statement gives the results of the competitions:—

BABY BEEF COMPETITIONS

Winner and Breed	Date of Birth	Total cost of feed consumed plus initial value of steer (\$5.00)	Weight of steer	Value	Net profit	Total score on conformation according to score card
Lambton— R. L. Johnston, Alvinston. Durham.	Mar. 4, 1917	\$ c. 56 39	lbs. 680	\$ c. 102 00	\$ c. 45 61	74
Victoria— Mark W. McKague, R.R. No. 4 Woodville. Grade Shorthorn.	April 22, 1917	103 05	1,250	187 50	84 45	....
Waterloo— A. R. Ferguson, R.R. No. 3 Galt. Aberdeen Angus.	Sept. 15, 1917	144 69	1,100	165 00	20 31	82



Agricultural class reviewing instruction and demonstration in stock judging.

INTER-COUNTY LIVE STOCK JUDGING COMPETITION

A great deal of interest has been aroused in connection with the Inter-County Live Stock Judging Competition held annually at the Winter Fairs at Guelph and Ottawa.

The rules were the same as in former years and each team of three boys had to judge two classes of beef cattle, dairy cattle, sheep, swine and heavy horses. The contestants had to write reasons and give them orally before competent judges.

All told, 18 teams took part in the contest at the Winter Fair at Guelph for the Duff Trophy, the tabulated score being as follows:—

INTER-COUNTY LIVE STOCK JUDGING COMPETITION

County	Dairy	Beef	Sheep	Swine	Horses	Total
Durham	435	381	457	377	489	2,139
York	522	363	184	479	547	2,095
Oxford	364	435	336	495	457	2,087
Essex	399	433	221	483	473	2,009
Middlesex	442	352	305	464	428	1,991
Norfolk	359	360	376	507	371	1,973
Victoria	310	386	399	462	409	1,966
Peel	381	409	133	527	483	1,963
Grey	317	422	229	452	470	1,890
Halton	381	344	331	422	409	1,887
Bruce	328	344	309	411	403	1,795
Waterloo	332	351	214	431	436	1,764
Wentworth	304	372	280	438	514	1,708
Kent	318	326	281	445	331	1,701
Lambton	357	307	194	346	385	1,589
Dufferin	290	350	213	337	366	1,556
Lincoln	353	375	252	420	153	1,553
Welland	265	325	182	395	324	1,491

The names of the winning team from Durham County are as follows:—

Reginald I. Fallis, Millbrook.
 Roy A. Ferguson, Blackstock.
 Eber W. Snowden, Bowmanville.

At the Ottawa Winter Fair, Lanark County was successful in winning the Peter White Trophy with the following score:—

INTER-COUNTY JUDGING COMPETITION

County	Dairy	Beef	Sheep	Swine	Horses	Total
Lanark	446	514	329	443	438	2,170
Dundas	422	418	420	437	433	2,130
Renfrew	422	409	410	454	377	2,072
Grenville	410	403	367	366	406	1,952
Northumberland	422	293	429	371	419	1,935
Carleton	364	365	417	346	360	1,852
Frontenac	427	449	350	375	244	1,845
Leeds	329	196	174	344	230	1,273

The Lanark Team was composed of the following:—

W. Strong, R. R. No. 4, Perth.
 Sheffield Graham, R. R. No. 3, Almonte.
 J. Hughes, Balderson.

CHAMPIONSHIP JUDGING COMPETITION

The Championship Judging Competition between the teams from Durham and Lanark for the handsome sterling silver trophy donated by the Union Stock Yards

and the Toronto Packers, was held at the Ontario Agricultural College, Guelph. The score is as follows, Durham County winning by a margin of 235 points:—

	Durham	Lanark
Dairy Cattle	460	424
Beef Cattle	434	328
Horses	274	229
Sheep.....	412	358
Swine	345	351
	1,925	1,690

The following day both teams were shown through the Stock Yards and the Packing Plants at West Toronto, after which they were banqueted at the Walker House by the Union Stock Yards Co. where the handsome trophy was presented to the winning team. All expenses of both teams taking part in the contest were paid by the Union Stock Yards Company.

FARM HELP CAMPAIGN

The farm labor problem was very vital one in the great majority of the counties of the Province during the past season. The fall of 1917 was a very unfavorable one for getting farm work done, thus leaving much plowing and cultivation to be done in the spring of the year. In addition to this so many of the young men from the farms had gone to the war which left the farmers short of what skilled help they had. Applications for farm help came pouring into the Representatives' offices, which were made branch offices of the Provincial Labor Bureaus. A great many of the applications were forwarded to the Provincial Employment Bureau at Toronto, and the zone offices located at Hamilton, Ottawa and London. Men, women and boys were pressed into service and although such labor was not experienced the acreage put into crop in some districts was not appreciably lessened.

The farmers made good use of the Representatives in the Farm Help Campaign and the latter co-operated with all local organizations in the district in order that the situation might be relieved.

The number of men, women and boys actually placed through the efforts of the Agricultural Representatives are given in tabulated form:—

County	Men	Women	Boys
Brant	15	.....	4
Carleton.....	243	4	110
Dufferin	21	2	56
Dundas	58	4	56
Durham	99	.....	.....
Elgin	15	.....	25
Essex	40	7	36
Frontenac	72	14	73
Glengarry	31	4	173
Grenville	10	.....	6

County	Men	Women	Boys
Grey	18	8	54
Haldimand	9	4	30
Halton	76	.....	51
Kent	18	.....	7
Lanark	10	1	24
Leeds	50	.....	.....
Lennox and Addington	6	2	22
Lincoln	40	20	50
Manitoulin .....	.....	.....	5
Norfolk	10	68	4
Peel	44	.....	.....
Oxford	30	15	18
Peterborough	4	.....	3
Prince Edward	106	25	60
Renfrew	55	6	.....
Simcoe	100	.....	.....
Fort William	19	.....	4
Victoria	10	.....	19
Waterloo	58	7	13
Welland .....	.....	.....	100
York	33	.....	.....

BACKYARD GARDENING AND VEGETABLE CAMPAIGN

A great deal of publicity was given the question of back-yard gardening through the press and through public meetings held in the towns and villages. The need was great from the standpoint of food production and the response was very gratifying. Practically all available and idle lots were utilized as never before and thousands of acres of vegetables were grown, the products reaching into the thousands in money value. All organizations co-operated in the matter with the Agricultural Representative taking a leading part.

The following brief summaries taken from reports submitted by the Agricultural Representatives will give some idea of what has been accomplished throughout the Province:—

DUNDAS: Greater Production Activities of the Morrisburg Horticultural Association, 1918.

Total Area in crop8 acres.
No. of plots.....52.

Kind of Crop	Total Yield	Total Value
Beets.....	20 bus.	\$10 00
Carrots.....	10 “	7 50
Parsnips	10 “	7 50
Beans (white).....	40 “	240 00
Beans (butter)	500 qts.	25 00
Cabbage	4,000 heads	200 00
Corn (field)	40 bus.	60 00
Corn (sweet).....	500 doz.	75 00
Potatoes.....	600 bus.	750 00
Turnips	150 “	75 00
Squash and Pumpkins.....	100 fruit	10 00
Tomatoes.....	50 bus.	25 00
Miscellaneous, Lettuce, Radish, etc .....	.....	15 00
.....	.....	\$1.500 00

The above land represented idle commons situated within the town limits that had previously been waste land. The Greater Production Committee of the Morrisburg Horticultural Association got control of this land, plowed and worked it down ready for planting, sub-divided it into 52 plots of approximately $1\frac{1}{6}$ acre each, and let the plots out to citizens at cost price which averaged about \$2.70 per plot. The plots were given excellent care throughout the summer without exception and so satisfactory were results that each owner had applied for the same lot next year. Arrangements have been completed to handle the project in 1919 under the same auspices.

In order to encourage interest in gardening among the children the Association gave them free land among the community gardens, dividing plots into areas 10 ft. x 12 ft. Seed was supplied children for planting this, including carrots, beets, parsnips, corn and potatoes. Prizes were offered for best kept plots and prizes also given at Horticultural Show in September. About 20 children availed themselves of this opportunity.

ESSEX: In the city of Windsor, business men through the Organization of Resources Committee undertook the cultivation of 500 acres of vacant land adjacent to Windsor. They secured 2 Fordson Tractors and grew corn, beans and flax. A large acreage was sown to fall wheat and land was prepared for spring planting.

FRONTENAC: During the past summer 400 acres of vacant or unproductive land was devoted to gardens and one small block of 10 acres of flax. This does not include small areas in backyards which were cleaned up and brought under cultivation. It is estimated that the value of the products of these gardens to the people of Kingston was in the neighborhood of \$40,000.00.

GREY: Taking the village of Markdale as one example in connection with Backyard Gardening, we do not know of a householder who did not produce sufficient vegetables for home use during the summer. In a fair number of cases produce was sold from the gardens, such as potatoes and beans. The school children planted potatoes on the school grounds and had twenty bags for sale this fall.

We spent part of one day inspecting gardens in the village of Hanover. Practically every foot of available soil was made use of, and in some cases the lawns were replaced by a vegetable garden. In Hanover, as in all the large towns of the county, land was secured for those who wished to make use of it. About five acres of C.P.R. property was used in this way and we failed to find one plot that was not a credit to the individual in charge of it.

HASTINGS: With the assistance of a few leading citizens in the village of Madoc, a Backyard Garden Contest was arranged in which fifty contestants took part. The gardens ranged from four square rods to one acre in extent and all had at least twelve varieties of garden products. The results were most satisfactory to all and the donor of the \$100 prize money for the winners was highly pleased with the campaign. The estimated value of the products of these gardens was \$3,000.

KENT: Chatham had about 500 acres in gardens last year on which it is estimated \$25,000.00 worth of produce was grown.

LINCOLN: The Home Garden Club was formed through the St. Catharines Horticultural Society. Over 60 acres of community and private gardens were worked on land that otherwise would have been idle. The yields were excellent and would roughly approximate \$12,000.00 in value. The Lincoln County Greater Production Co., Limited, was organized as a joint stock company on a \$20.00 share basis and capitalized at \$25,000.00. The company owns 2 Fordson tractors, with

plows, disc harrows, seed drills and other machinery. The purpose was purely patriotic and vacant lands in and adjoining St. Catharines were secured for the payment of the taxes.

During last season 25 acres of Marquis Spring Wheat and 20 acres of Fibre Flax were sown. After deducting the seed for 1919 over \$1,000.00 was realized. The company planned to sow 300 acres of Fall Wheat but owing to the wet weather only 84 acres were put in and 136 acres were prepared for spring planting.

MIDDLESEX: Six community gardens in the city of London were organized. Practically every vacant lot in the city and towns of the county has been used for growing vegetables. This helped relieve the food shortage greatly.

PEEL: Practically every householder in Brampton had a vegetable garden, due largely to the Patriotic Vegetable Campaign. The matter was given a great deal of publicity and garden plots were supplied for those who had no land. Factories were encouraged to assist their employees. Local stores supplied seed at reduced



“March Past” of school boys and girls who transformed their school play grounds into war gardens.

prices. The pupils of the schools were supplied with plots, 3 acres in extent. Tons of vegetables were produced.

FORT WILLIAM: Last spring the Thunder Bay Production Association was organized. Some 300 acres were devoted to potatoes and 200 acres to other vegetables. The potatoes yielded at the rate of 100 bags per acre—a total of 30,000 bags, worth \$1.50 per bag or a total of \$45,000.00. The 200 acres of vegetables averaged \$100 per acre or a total of \$20,000.00. This makes a grand total of \$65,000.00 worth of vegetables.

WATERLOO: In Galt 400 vacant lots were used by the citizens to grow vegetables.

YORK: Every available lot in the town of Newmarket was plowed up and taken over by someone for growing vegetables. Prizes were given for the best gardens which were judged during the summer and also for the products shown at the fall fair. Over 200 school children grew war gardens, the value of the

vegetables amounting to \$200.00. The Newmarket Girl Guides undertook to grow one acre of vegetables. The products were sold and the proceeds were given to the Red Cross. Enquiries at the Representative's office for seeds, potatoes, grain, etc., numbered 480.

EXPERIMENTAL AND DEMONSTRATION WORK

Alfalfa. Demonstrations to show the hardiness of alfalfa seed were conducted in a number of counties throughout the Province. Particulars of this test giving results are quoted from the report submitted by the Dundas Representative:—

Three pounds of Grimm alfalfa were sown in rows 30 inches apart on one acre of ground, on the farm of A. E. Nash, Morrisburg, in the spring of 1915. There was a perfect stand on this area last season when 31½ tons of hay were cut



Growing alfalfa for seed.

per acre the first cut. The second cut was saved for seed and yielded about 50 lbs. of good seed. Each year the crop has been cut twice. Last year 60 lbs. of seed were secured from one half of the second cut. Mr. Nash sold this at 50c. per pound. It was found last year that the first crop seeded considerably better than the second, one-half of each being saved for seed. Generally speaking it would be safer to save the first crop for seed in this district as early frosts frequently destroy the seed crop from the second cut. Seed grown in this district has been found to be particularly hardy. The Alliston Stock Farm bought some seed from Mr. Nash in 1916 and it proved to be very hardy. Mr. Nash also sowed some of his local seed on his own farm and found it to be very much hardier than the commercial seed on the market.

The Representative from Lennox and Addington reports as follows:—

The plot of Grimm's Alfalfa on the farm of D. W. Wright, Odessa, produced a heavy crop this year for the first time in four years. This alfalfa was not winter killed, and has grown thicker since the first year. It seems absolutely hardy in this climate. Mr. Wright has sown a small field on his farm with some seed obtained from this plot the previous year, and this year is planning to sow a 10

acre field. We hope to be able to obtain Grimm's Alfalfa seed from now on for distribution in other parts of the county. The only disadvantage about Grimm's Alfalfa is that it is tall and coarse, and is inferior in feeding value to ordinary alfalfa.

The effect of the eradication of the Common Buckthorn on the prevalence and severeness of Crown or Leaf Rust of Oats in the Spencerville District:—

For a number of years the oat crop in the Spencerville District, Grenville County, has been badly damaged by rust. So great was the damage that in some cases the oats were not worth harvesting. Some farmers claimed to have lost from \$1,000 to \$2,000 due to this rust. It was estimated that approximately 50 farms were within the affected area representing in the neighborhood of 6,000 acres.

The Agricultural Representative was instrumental in having Prof. J. E. Howitt, of the Botanical Department at the Agricultural College, Guelph, investigate the matter. His finding was that a shrub known as the Common Buckthorn which was found in large quantities on two farms within the affected area was harboring "Puccinia Coronata," the rust organism which causes Crown or Leaf Rust on Oats. This Buckthorn was planted out some fifty years ago as an ornamental hedge; it was, however, neglected of late years and was growing wild along fences, in fence corners, and in the woods where it had spread due to the birds distributing the seeds. In May and June after the shrubs had leafed out freshly, the reddish spores of the rust organism could be quite easily seen.

As a means of greatly lessening the damage done to the oat crop, Prof. Howitt recommended to the Township Council that means be taken to completely eradicate the shrub. A deputation from the Edwardsburg Township Council waited on the Minister of Agriculture at Ottawa and secured a grant of \$200 from the Dominion Government towards the eradication of the Buckthorn on the following conditions:

1. That the Township agree to supplement this grant by an amount sufficient to completely eradicate this shrub wherever found in the Township.

2. That the Council pass a by-law making the destruction of the Buckthorn compulsory wherever found in the Township.

3. That a sworn statement by the Clerk of the Township that the Common Buckthorn had been completely eradicated throughout the entire Township of Edwardsburg, at a cost to the Council of such and such an amount, be made to the Minister of Agriculture at Ottawa.

The work was immediately undertaken by the Council and farmers in the district under the supervision of the Agricultural Representative. Men, teams and one of the Ontario Government owned farm tractors were soon at work pulling out the shrubs and burning them. Some further work is to be done in the spring but it is expected that the destruction of this pest will mean an annual saving to the farmers in this district of thousands of dollars.

Liming and Fertilizer Demonstrations.—The Representative from Welland County reports as follows:—

"In the Spring of 1916, in co-operation with the Department of Chemistry of the Ontario Agricultural College, we undertook to demonstrate the use of lime applied in varying quantities and in different forms. The plots chosen were on the farm of Mr. Reuben Shisler of Stevensville. The soil was of a heavy clay nature and showed a decided acid reaction. Twenty plots 1/50 acre in area were measured out. The hay obtained from these plots may be summarized as follows:—

These results show an increase of 1.5 tons of the plots treated with ground limestone over the untreated and increase of 1.82 tons on the plots treated with slaked lime. There is no indication either that excessively heavy applications of

slaked lime increase crop yields. Under present market conditions the most economical method of securing lime would be in the form of the ground limestone rock.

Experiments with different forms of Phosphoric Acid were also conducted. These plots were located upon the farms of Mr. Chas. White in Humberstone Township and Raymond Davis of Wainfleet Township. Plots containing 1/25 acres were used and each set of plots were in duplicate. Fertilizers used were Acid Phosphate, Basic Slag and Ground Steamed Bone. The tabulated results are given as follows:—

Plot No.	Treatment	Davis Farm, yield of wheat, pounds per plot	Yield of wheat, bushels per acre	Yield of straw, pounds per plot	Yield of straw, tons per acre
1	Acid Phosphate, 400 pounds .	75	31.25	165	2.06
2	Basic Slag, 500 pounds	115	47.9	220	2.75
3	Bone Meal, 300 pounds	72.5	30.2	187.5	2.34
4	Check	45	18.75	130	1.62
5	Acid Phosphate, 400 pounds .	79.4	33.0	190.6	2.38
6	Basic Slag, 500 pounds.....	110	45.8	217.5	2.71
7	Bone Meal, 300 pounds	50.6	21.0	119.4	1.49
8	Check	25.6	10.67	76.8	.96

It may thus be seen that by using certain commercial fertilizers on wheat the yield was more than doubled. In figuring the average profit per acre derived from the use of these fertilizers we find the following as per table.

Nature of Fertilizer	Quantity applied, pounds	Cost per ton	Cost per acre	Increased profit per acre, wheat \$2 per bushel
			\$ c.	\$ c.
Acid Phosphate	400	30 00	6 00	28 80
Basic Slag	500	20 00	5 00	59 20
Bone Meal	300	68 00	10 20	11 80

This estimation of course does not take into account the cost of labor in applying the fertilizer, but there would probably be only slight variation. It is not presumed that the results obtained in 1918 should be taken as a criterion of its value each year but it is at least suggestive of results obtainable by commercial fertilizers properly applied.

POTATO DEMONSTRATIONS

Experiments conducted at the Ontario Agricultural College, Guelph, and the Experimental Farm, Ottawa, have shown northern grown seed to be superior to that from other sources.

To encourage the planting in Old Ontario of disease-free, vigorous northern grown seed potatoes, preferably from Northern Ontario, a series of demonstrations were conducted in each county in Old Ontario to show the relative merits of seed from New Ontario, Old Ontario and New Brunswick; of the Irish Cobbler and Green Mountain varieties; and of the relative yields of these varieties when planted on sand and clay respectively.

Each demonstration comprised the following plot arrangement, and each Agricultural Representative had two, one on sand and one on clay:—

Plot 1.	Green Mountain potatoes grown in Northern Ontario.
" 2.	" " " " " Old Ontario.
" 3.	" " " " " New Brunswick.
" 4.	Irish Cobbler potatoes grown in Northern Ontario.
" 5.	" " " " " Old Ontario.
" 6.	" " " " " New Brunswick.

One bushel of seed was supplied for each plot, sufficient to plant 1/10 of an acre. Well drained land, uniform in character, was chosen. Uniform fertilization and cultivation was given. The seed was treated before planting to prevent the spread of diseases, and the growing crops were sprayed for blight.

The seed secured was rather disappointing. In Old Ontario the seed of several very good farmers who had carefully followed methods of selection was secured, but as the strains varied the results lack the uniformity desired. All the Northern Ontario seed was secured from one grower in the Thunder Bay District, but it was just ordinary field run stock which had never been selected, was not entirely pure as to variety and was quite badly affected with Black Leg. The New Brunswick stock was all certified, but proved to be badly diseased, particularly the Green Mountain variety which averaged 61 per cent. Mosaic.

The calculations were made and direct supervision given by the various Agricultural Representatives. All plots were inspected for disease by the Botanical Staff of the Ontario Agricultural College at Guelph under the direction of Professor J. E. Howitt.

The two most prevalent and virulent diseases found were Leaf Roll and Mosaic. These diseases have caused low yields of potatoes in a great many sections of the Province. Of the two, Leaf Roll is the more destructive to yields and profits and is also the more widely established. The cause of either is not at present definitely known, although each develops rapidly in the field under conditions of drought and heat, and the only assured method of control is the planting of disease-free seed, preferably from Northern Ontario. Briefly stated, Leaf Roll is characterized by the rolling of the lower leaves of the plant. They are much thicker than in normal and crackle at the touch. The plant is, as a rule, small and has an upright habit of growth. A crop of potatoes affected with Leaf Roll reduces the yield by about 70 per cent. and is one of the most serious diseases with which we have to contend.

The leaves of potatoes affected with Mosaic pucker or blister and are mottled with yellowish green spots. In severe cases the plants assume a yellowish green color and have a wrinkled appearance. The disease causes a decrease in yield of about 40 per cent.

Results:

The percentage of Leaf Roll and Mosaic and the yield in bushels per acre of the demonstration plots from Southern Ontario, Northern Ontario and New Brunswick are tabulated as follows:—

IRISH COBBLER

	Old Ontario			Northern Ontario			New Brunswick		
	Leaf Roll	Mosaic	Yield	Leaf Roll	Mosaic	Yield	Leaf Roll	Mosaic	Yield
			bus.			bus.			bus.
Algoma	9.2	4.2	236.0	5.3	1.0	242.0	0.0	10.0	250.5
Brant	56.0	3.2	113.3	0.2	2.2	201.1	15.5	4.2	157.6
Brace	56.7	17.7	106.0	0.0	0.0	112.0	2.0	0.1	131.3
Durham	8.7	2.0	67.7	0.0	0.0	98.6	7.2	1.5	91.5
Elgin.....	92.5	1.2	55.0	0.0	1.0	75.7	3.2	1.5	88.5
Essex	86.5	0.5	55.0	0.0	1.1	60.0	2.0	0.0	141.0
Frontenac	4.5	4.0	247.0	0.0	0.0	209.0	6.0	2.0	251.0
Glengarry	4.0	1.5	238.1	0.0	0.0	357.0	5.0	1.5	258.4
Grey	87.7	1.2	78.4	0.7	0.0	120.8	4.2	0.7	80.0
Haldimand	93.0	1.2	87.4	0.5	1.2	126.2	1.7	0.7	167.6
Halton	80.7	5.2	336.5	0.0	1.7	577.5	2.7	3.5	424.0
Hastings	6.0	0.0	107.1	0.0	0.0	130.0	4.5	1.5	88.5
Huron	93.2	2.2	82.3	0.0	1.0	94.3	3.7	2.5	119.0
Leeds	1.7	0.0	102.0	0.0	2.2	96.0	2.7	0.5	97.5
Lincoln.....	83.2	1.7	73.5	0.0	1.2	96.2	1.5	2.2	88.4
Middlesex.....	55.2	0.5	22.5	0.2	0.5	52.5	15.2	33.0	43.0
Muskoka.....	2.5	2.0	230.4	0.5	0.7	272.9	2.5	1.2	174.9
Norfolk.....	93.7	1.7	54.8	0.2	1.5	100.0	4.0	0.7	105.9
Northumberland .	5.0	0.0	58.6	0.0	0.0	53.2	5.5	1.5	48.8
Ontario.....	5.5	0.7	228.7	0.0	1.7	213.7	5.7	1.0	229.5
Oxford	92.0	1.5	95.6	0.5	0.2	190.5	2.7	0.7	166.4
Peel	80.0	7.5	72.0	10.0	4.5	99.9	12.0	6.5	111.0
Prince Edward..	3.0	2.0	142.6	0.0	0.0	155.6	2.0	2.5	149.0
Renfrew	5.2	0.7	122.0	0.0	0.0	106.6	3.5	0.7	92.0
Victoria	3.0	1.0	195.4	0.0	0.0	196.2	2.7	0.0	197.7
Waterloo	68.5	1.5	49.5	11.0	6.3	161.8	13.5	2.5	127.1
Wellington	67.3	2.8	66.8	5.0	1.6	98.0	8.1	0.6	97.6
Wentworth	67.0	3.5	140.5	0.0	5.2	213.0	8.2	7.0	191.5
York	9.0	0.0	122.0	0.0	1.5	140.0	2.5	0.5	124.0

GREEN MOUNTAIN

	Old Ontario			Northern Ontario			New Brunswick		
	Leaf Roll	Mosaic	Yield	Leaf Roll	Mosaic	Yield	Leaf Roll	Mosaic	Yield
			bus.			bus.			bus.
Algoma	0.7	87.7	250.0	0.0	1.5	280.5	0.0	86.5	172.0
Brant	13.0	20.0	136.0	5.5	6.7	118.0	17.2	31.0	71.5
Bruce	50.0	22.5	101.3	0.0	0.5	134.5	1.7	65.5	129.0
Carleton	2.0	20.5	209.0	0.2	2.5	193.0	1.2	36.0	134.5
Durham	3.7	27.0	37.4	0.6	2.0	101.1	5.2	69.7	74.5
Elgin	1.7	20.2	125.0	1.2	0.5	109.5	2.0	76.5	114.0
Essex	0.5	16.5	98.0	0.5	0.0	68.0	5.0	62.0	70.0
Frontenac	3.5	28.5	280.0	0.0	4.0	217.5	2.5	69.5	252.5
Glengarry	3.5	28.5	226.4	0.0	5.0	380.4	4.0	72.0	267.1
Grey	33.7	34.5	126.3	0.0	1.5	136.0	2.0	67.0	67.2
Haldimand	2.5	13.2	145.2	0.0	4.0	207.2	1.0	70.5	88.3
Halton	3.2	22.7	402.0	2.7	2.7	394.5	1.2	70.7	353.0
Hastings	1.5	26.5	64.0	0.2	0.7	81.5	4.0	58.5	93.5
Huron	5.5	31.5	162.5	0.0	0.0	171.0	3.2	64.2	143.0
Leeds	3.0	38.7	123.7	0.7	4.2	113.0	3.2	70.0	89.5
Lincoln	5.0	27.7	124.2	1.0	1.2	103.9	0.5	69.7	120.4
Middlesex	13.0	35.2	40.0	0.7	2.2	56.0	3.7	34.7	56.0
Muskoka	2.0	75.5	213.9	0.0	1.5	206.6	2.5	84.2	157.5
Norfolk	3.0	22.5	137.4	0.0	2.0	142.5	3.0	73.0	99.6
Northumberland ..	4.5	19.0	73.3	2.0	5.0	65.5	6.0	68.5	44.0
Ontario	1.2	23.5	267.4	0.5	1.7	278.4	4.5	50.0	228.8
Oxford	4.0	33.7	297.7	0.0	1.2	258.3	3.2	59.2	222.7
Peel	44.0	33.5	126.2	4.0	5.5	139.2	8.0	49.0	99.8
Prince Edward ..	2.0	21.5	200.1	0.0	4.5	215.3	2.5	73.5	103.6
Renfrew	2.7	16.8	223.3	0.5	2.7	189.3	2.7	72.2	123.0
Victoria	4.0	32.2	251.0	2.8	2.0	241.2	1.7	66.5	189.7
Waterloo	16.2	31.0	136.9	11.2	19.5	139.8	10.2	54.7	92.0
Wellington	33.3	19.3	83.0	4.0	3.3	142.6	5.0	40.1	84.3
Wentworth	0.7	28.5	212.5	0.0	3.2	263.5	0.2	46.0	248.5
York	2.0	21.5	142.0	0.0	0.5	180.0	0.0	45.5	130.0

The average yield of marketable potatoes of all plots calculated in bushels per acre, together with the percentage of Leaf Roll and Mosaic, were as follows:—

	Irish Cobbler			Green Mountain		
	Leaf Roll	Mosaic	Yield	Leaf Roll	Mosaic	Yield
Northern Ontario.....	1.4	1.2	bus. 153.4	1.2	3.0	bus. 177.5
Old Ontario.....	45.5	2.4	127.7	8.8	29.3	167.8
New Brunswick.....	5.1	3.1	148.0	3.5	61.8	137.3

Comparative yields in bushels per acre of similar seed on clay and sand soils:—
In only 22 counties could the results *re* relative yields on sand and clay be taken as conclusive. In other cases accidents, etc. prevented reliable calculations being made.

GREEN MOUNTAIN

	Clay			Sand		
	Old Ontario	Northern Ontario	New Brunswick	Old Ontario	Northern Ontario	New Brunswick
	bus.	bus.	bus.	bus.	bus.	bus.
Algoma.....	290	306	169	210	255	175
Bruce.....	46.6	88.6	98	156	180	160
Carleton.....	235	216	126	183	170	143
Durham.....	77.5	88.5	53	37.2	113.5	96
Elgin.....	187	164	154	63	55	74
Grey.....	108.8	92.8	62.4	36.8	97.6	117
Haldimand.....	156.5	261.5	88.1	134	153	88.5
Halton.....	381	345	363	423	444	443
Hastings.....	68	92	101	60	71	86
Huron.....	143	168.5	104	182	173.6	182
Leeds.....	128	116	92	119.5	110.0	87
Lincoln.....	82.5	63.8	105.8	166	144	135
Middlesex.....	20	45	52	60	67	60
Muskoka.....	211.6	223	155.3	206.1	190.1	159.7
Norfolk.....	119.3	139.3	92.5	115.6	146	106.6
Ontario.....	171.6	168.7	114.4	363.2	388.2	343.2
Oxford.....	273.7	231.5	233.5	321.8	285.1	211.9
Renfrew.....	301.3	232	152	145.3	146.6	94
Victoria.....	243.5	225	214.5	258.5	257.5	165
Waterloo.....	160	153.3	106.6	113.9	126.3	77.5
Wellington.....	78	66	61	83	111	65
Wentworth.....	150	161	167	275	366	330

IRISH COBBLER

	Clay			Sand		
	Old Ontario	Northern Ontario	New Brunswick	Old Ontario	Northern Ontario	New Brunswick
	bushels	bushels	bushels	bushels	bushels	bushels
Algoma	322	274	266	190	210	235
Brant	35.7	118.2	83.2	192	284	232
Bruce	56	84	102.6	156	140	160
Durham	61	95.2	66	74.5	102	117
Elgin.....	47	75	84	55	76.5	93
Grey	144	180	72	120	144	48
Haldimand	85.7	136.5	151	89.2	116	184.5
Halton	290	261	319	383	494	529
Hastings	113	140	90	101	120	87
Huron	95.3	102	134	69.3	86.6	104
Leeds	127	120	100	77	72	95
Lincoln	75	102.5	80.8	96	90	72
Middlesex	15	30	19	30	75	67
Muskoka	201.5	286.7	146.6	259.3	259.3	203.2
Norfolk.....	40	80	75.6	69.6	120	136.6
Ontario	144.4	132.9	143	313.1	294.5	131.6
Oxford.....	115.3	166.5	164.3	75.9	214.5	168.5
Renfrew	154.6	124	96	89	89.3	88
Victoria	186.3	192.3	201.9	204.5	200.2	193.5
Waterloo	43.3	190	126.6	55.8	133.6	127.5
Wellington	46	82	90	23	68	53
Wentworth	61	151	127	220	295	256

Summarizing the findings, the comparative yields in terms of marketable bushels per acre from the 22 counties, were as follows:

	Irish Cobbler		Green Mountain	
	Sand	Clay	Sand	Clay
Northern Ontario	167.5	142	184.1	165.8
Old Ontario.....	133.8	111.8	170.5	165.5
New Brunswick.....	153.2	124.5	154.5	128.2
Total.....	151.5	126.1	169.3	153.2

Thus, in every case, considerably larger yields were secured on sand, although this is more noticeable in the case of the Irish Cobbler variety.

Again summarizing the yields of marketable potatoes per acre from these two varieties in 22 counties, we find the following yields were secured:

	Green Mountain	Irish Cobbler
Northern Ontario.....	174.9	154.7
Old Ontario.....	168	122.8
New Brunswick.....	141.3	148.8
Average	161.4	142.1

These demonstrations clearly prove, so far as may be proven by one season's demonstrations, the superiority of New Ontario seed over both the Old Ontario and the New Brunswick seed. If average Old Ontario seed had been secured, as was the case with the New Ontario, the results would have been still more convincing.

Next year, the same demonstration will be conducted again, but superior seed from all three sources and from one grower in each source, has been obtained. A plot of the farmer's own seed, upon whose farm each demonstration is conducted, will also be grown in comparison with this high-class seed. It is the intention of the Department to continue this demonstration for a period of at least three years, and it is hoped some very valuable data will be obtained.

In addition to these specially mentioned demonstrations, Representatives have gone out to the farms to show the proper method of treating seed grain for smut; treating seed potatoes to prevent such diseases as Common Scab, Rhizoctonia and Black Leg; spraying potatoes with Bordeaux Mixture to prevent blight; and pruning and spraying orchards.

The object in all this work is to demonstrate to the farmer practical methods with the hope that he will be able to profit thereby.

DRAINAGE SURVEYS

During the past season, drainage work was placed on a better basis by the division of the Province into districts, and the appointment of specially qualified men in charge to make drainage surveys for farmers, and to look after all drainage problems. Permanent men, graduates of the Ontario Agricultural College, have been appointed in charge of such work. The following arrangement as to groups being made:

Counties.	Headquarters for District Man.
Norfolk	Office of Agricultural Representative, Hamilton, Ont.
Oxford	
Brant	
Haldimand	
Wentworth	
Lincoln	
Welland	
Halton	Ontario Agricultural College, Guelph.
Peel	
York	
Simcoe	
Dufferin	
Wellington	
Grey	
Bruce	
Huron	
Perth	
Waterloo	
Kent	Office of Agricultural Representative, Chatham, Ont.
Essex	
Middlesex	
Elgin	
Lambton	

In grouping the counties, it was found that there was not sufficient drainage work east of Victoria County, to divide the territory satisfactorily, and for that

reason, two temporary men were put on to look after this section of the Province, with headquarters at Guelph. The majority of the surveys were made by these men, though an occasional survey or profile was made by the Agricultural Representatives.

Particulars of drainage surveys made by the Agricultural Representatives are given as follows:

County	No. of Surveys made	Acreage surveyed	No. of profiles made
Brant	3	25	.....
Bruce	9	110	5
Carleton.....	20	.....	20
Dufferin.....	1	20	.....
Elgin.....	30	300	29
Essex.....	18	150	10
Grenville.....	.....	.....	1
Grey.....	2	35	1
Haldimand.....	1	40	3
Kenora.....	10	115	4
Kent.....	2	100	2
Lanark.....	7	1,000	4
Lennox and Addington.....	.....	24	1
Lincoln.....	24	93½	40
Middlesex.....	7	150	9
Norfolk.....	2	.....	.....
Ontario.....	5	.....	.....
Oxford.....	27	.....	27
Peterborough.....	5	12	4
Prince Edward.....	6	220	5
Victoria.....	.....	9	11
Waterloo.....	2	.....	.....
Wentworth.....	3	125	1

LIVE STOCK BREEDERS' CLUBS

With the object of encouraging community breeding, promoting good fellowship amongst the members and advancing the live stock industry generally, the Agricultural Representatives have given every encouragement and assistance to the organization of breeders' clubs.

Those organized during the past year are as follows:

- Brant County: Brant District Horse Breeders' Club.
- Durham County: Durham Holstein Breeders' Club.
- Grenville County: Rideau Valley Clydesdale Horse Breeders' Club.
- Haldimand County: Hagersville Horse Breeders' Club.
- Huron County: North Huron Clydesdale Breeders' Club.
- Kenora District: Dryden Horse Breeders' Club.

WORK WITH FALL FAIRS

Each year the Agricultural Representatives co-operate as far as possible with the fall fair boards in their respective counties. They invariably act as an *ex-officio* member of the Directorate of the local Agricultural Society, and in this capacity offer suggestions as to the revision of the prize lists, arrange special classes of exhibits for the school children, and co-operate in making the fair a success. Special educational exhibits are prepared and staged for the benefit of the farmers attending the fairs; live stock judging competitions are conducted for junior farmers, and assistance is given generally in the management of the fair.

In Peel County, the Agricultural Representative introduced a special feature at the Brampton Fair, which took the form of a Girls' Canning Competition. Teams of four girls from each of the five Junior Institutes in the County took part in the competition. The Fall Fair Board contributed \$30.00 in prize money, and additional prizes were secured from public spirited persons. The following rules were drafted:

BACON HOG CAMPAIGN

Owing to the serious food situation in Europe, more particularly with reference to the supply of fats, a Dominion-wide campaign was launched in the fall of 1917, to place the facts clearly before the farmers and induce them to add to the number of sows they were keeping for breeding purposes.

A special meeting of the Agricultural Representatives and three leading and wide-awake farmers from each county in the Province of Ontario, was held in the Parliament Buildings, early in November, when the real food situation was brought to their attention by the Food Controller and officials of the Dominion and Provincial Departments of Agriculture.

The campaign was conducted somewhat as follows: The Agricultural Representatives held a county conference at some central point in their respective counties, which was attended by two farmers from each township in the county, in so far as was practicable. The Agricultural Representative and three farmer delegates who attended the Provincial Conference, addressed the meeting and became responsible for the success of the campaign.

Following the County Conference, arrangements were made to hold a series of Township Conferences the following week. From fifteen to thirty delegates were specially invited to attend these meetings, though it was understood they were open to all. The delegates attending the Provincial Conference acted as chairmen at the Township Conference, and from three to four conferences were held each day until the county was covered. All the delegates were supplied with a pamphlet containing the addresses and discussions that took place at the Provincial Conference. The territory was divided up, and each delegate assigned a certain section for canvassing the farmers. The whole question was then placed before the farmers by personal contact, the canvasser securing from each farmer the number of brood sows he had at the time, the number of brood sows he kept under normal conditions, and the number he would add to his herd. The whole campaign was conducted during the months of November and December—thirty counties being included in the survey. The campaign on the whole met with very favorable success, though reports from all counties were not received. In the Counties of Elgin, Essex and Kent, the farmers were very short of feed, owing to the unfavorable season for growing corn, and many of the sows which were previously intended for breeding purposes, were marketed. In Oxford County, the farmers had gone very heavily into producing milk for the condenseries and city milk trade, which left them short of by-products to feed their hogs, and hence have very largely gone out of the business.

It is estimated that as a result of the campaign, the number of brood sows have been increased thirty per cent. over what they had at the commencement of the survey.

BACK YARD PIGS

Considerable interest was aroused last spring in the "Feed a Pig" and "Keep a Pig" campaign, which was launched to encourage people in towns and villages to

produce their own pork. The Agricultural Representatives laid the seriousness of the food situation, particularly with reference to the shortage of hogs, before the town people, and in several instances the Town Councils gave every encouragement to the movement. In the towns of Perth and Carleton Place, brood sows were purchased by the Town Council, and the small pigs were sold to the townspeople at cost. In Perth, over 70 small pigs were disposed of, over half of which found their way into back yard pens of local people, at a price ranging from \$4.50 to \$5.25 a piece. These pigs were fed and marketed when weighing from 175 to 200 pounds. The Agricultural Representative from Grenville County, realizing the seriousness of the situation, kept two pigs in his own backyard and reports as follows:

In view of the fact that I had advised rather strongly during the spring months the keeping of back yard pigs in villages, as a means toward increasing production and encouraging thrift in war time, I decided to buy two pigs and put into practice what I had preached, particularly as I had a half acre of garden and therefore could keep pigs without causing annoyance to my neighbors or myself. There was no pen on my lot and nothing with which to make one, consequently I had to buy some lumber and build one. It consisted simply of a pen about 14 feet square and 3 feet high, with earth floor and with a covering over one corner under which was a large packing box for the pigs to sleep in.

I am submitting herewith a complete statement of outlay and receipts in connection with these pigs which is interesting and shows plainly that backyard pigs can be kept with considerable profit. I might say that I was fortunate in that I chose my two pigs from a litter of eleven. I was also fortunate in being able to get three quarts of skim milk per day from a neighbor who had a cow while the pigs were very young. In addition to the feeds mentioned in the statement, weeds and thinnings from the garden were fed, and also kitchen refuse for which no charge is made.

EXPENDITURES AND RECEIPTS IN CONNECTION WITH KEEPING TWO PIGS IN A VILLAGE BACKYARD.

	Dr.	Cr.
May 14th 2 pigs 6 weeks old at \$6.00	\$12 00	
Old lumber for pen	1 00	
Box for pigs to sleep in	75	
Nails	15	
150 lbs. skim milk at 40c.	60	
100 " middlings	2 30	
100 " shorts	2 15	
100 " corn oil cake	2 95	
50 " linseed oil cake at \$3.50	1 75	
100 " Shumacher	2 90	
200 " ground corn, oats and barley at \$3.00	6 00	
100 " barley	3 00	
Carting hogs to stockyard	1 00	
Total cost	\$36 55	
Aug. 29th 2 hogs weighing 340 lbs. at \$19.00 per cwt.		\$64 60
Profit		28 05

FARM TRACTORS

The farm tractors purchased in 1917, as a war measure, to aid and stimulate production, were operated again during the past season under the supervision of the Agricultural Representatives.

The tractors requiring any repairs were sent to the Military Hospitals at Kingston, Whitby, London and Guelph, in December, 1917, and were overhauled by the soldiers taking a course in motor mechanics, under the supervision of competent instructors and repair men.

In doing contract work for the farmers last season the Province was divided into nine districts, and a competent mechanic was placed in charge of the tractors

in each district. These tractor mechanics were supplied with a Ford car, a kit of tools, and were expected to keep the machines in good repair, instruct operators, and act in co-operation with the Agricultural Representatives to see that they were operated as efficiently as possible.

Farmers or others wishing ploughing or discing done on their farms, made application to the Agricultural Representative in his county and signed a contract or an agreement for tractor service.

At the commencement of the season, all work was done on the basis of fifty cents per hour, and fifty cents per acre, the farmer supplying the fuel and boarding the operator. Later, the farmer had the option of signing an agreement for work done at the flat rate of \$2.25 per acre for ploughing, and \$1.10 per acre for disc harrowing, fuel being supplied as before, and the mechanic being boarded while the machine was working on his farm.



Departmental tractors helped to cultivate thousands of additional acres in wartime.

During the two seasons between 40,000 and 50,000 acres were ploughed and over 7,000 acres disced.

The operators were paid 20c. per hour, and a bonus of 25c. per acre for ploughing and 8c. per acre for discing. In spite of the fact that men on this basis could make from \$75.00 to \$100.00 per month and their board, we had great difficulty in getting and keeping good men. Seventy-five per cent of our trouble was due to inefficient operators.

Another great drawback was the difficulty of obtaining repair parts; this caused loss of time, in some instances amounting to from six to eight weeks. During this time no acreage could be ploughed. Considerable wet weather was encountered, both in the spring and in the fall, and during this period it was impossible to use the tractors.

Owing to the cessation of hostilities, it has been deemed not necessary to operate the tractors another year. As a consequence, the tractors are now being overhauled and repaired and will be offered for sale.

Hundreds of farmers all over the Province having had an opportunity to observe the operation of the Government-owned farm tractors, have now purchased an outfit for their own use. This will partially relieve the labour shortage and will result in more time work being done, particularly in regard to ploughing and cultivation.

BOYS' POTATO GROWING CONTEST IN CARLETON AND RUSSELL COUNTIES

The Boys' Potato Growing Contest, which has been conducted in Carleton County each year since 1913, was participated in by 19 farmers' sons in 1918. The competition is financed in all its details by the late Mr. R. B. Whyte, of Ottawa, who was chairman of the committee in charge. The contest was confined to boys between the ages of 12 and 18 years. Each competitor was required to operate a plot 1-10 of an acre in extent, to keep an accurate account and record of all his operations and expenditures, to exhibit one bushel of potatoes at the County Fair, to submit a report on his work, and a certified statement of his yield of potatoes. The final awards were based on: (1) Field score; (2) yield; (3) exhibit at County Fair, and (4) written report. Suitable cash prizes and silver medals were awarded. The average yield of potatoes was 219.6 bushels per acre, the cost of producing a bushel of potatoes was 27.3 cents, and the net profit per acre was \$64.00. All the competitors but one used the Green Mountain type of potatoes, and six of the contestants at harvest time selected specially desirable hills for planting their special seed plot in 1919.

Such competitions as above outlined are deserving of every encouragement.

GIRLS' GARDENING AND CANNING COMPETITION IN CARLETON COUNTY

The Girls' Gardening and Canning Competition which was inaugurated in 1915, had 26 competitors in 1918. The competitors are required to keep an accurate record of all operations, submit a report on their work, and to make an exhibit of fresh and canned vegetables at the County Fair.

Each competitor was presented with 40 plants of the Herbert Raspberry, by the late Mr. R. B. Whyte, of Ottawa, which variety was originated by himself. Each competitor is expected to contribute to friends and neighbours young plants from these bushes from year to year. Some excellent returns have been secured by competitors from their raspberry plants; one girl reported having picked 65 quarts from her patch of Herbert Raspberries, consisting of 30 plants, ten of the original lot of 40 having died. The Agricultural Representative reports as follows: "One of the outstanding educational features of this competition was the exhibit at the County Fair of fresh and canned fruits and vegetables, and the exhibit in 1918, as in 1917, was a revelation to the majority of the people who had an opportunity of examining the excellent display which the young girl gardeners were able to put up."

BOYS' AND GIRLS' LIVE STOCK CLUBS

The organization of Calf, Pig and Sheep Clubs, for boys and girls, is just in its infancy in the Province of Ontario. The object of these clubs is designed primarily to prepare the boy and girl for the farm; to create in them a deeper interest in live stock, to bring into the district a number of pure bred pigs, sheep and heifer calves, of both dairy and beef breeds, and to encourage the boys and girls to keep records, and thus introduce better methods of feeding and management.

During the past year, the following clubs were organized:

Dundas County: Finch Boys' and Girls' Pig Club.

Lennox and Addington County: Lennox and Addington Boys' and Girls' Pig Club.

Peel County: Ebenezer Junior Farmers' Pig Club; Peel County Dairy Calf Club; Caledon Sheep Club.

The boys and girls seem quite eager to join these live stock clubs. The money is invariably loaned by the bank at six per cent. interest, the contestants signing a note for six, ten or twelve months, which is endorsed by their parents or guardians. This money is used to purchase stock. The parents are usually asked to sign off any claim to the ownership of the calves, pigs or sheep, or the profit from them. All animals are insured against loss, the premium being covered in the cost price of the animal. They are also registered in the names of the boys and girls.



Boys studying and judging live stock.

PIG CLUBS. The following are the rules drafted for the Lennox and Addington Pig Club, which may be taken as fairly representative of those already organized. To be conducted under the joint auspices of the Merchants' Bank of Canada, Napanee Branch, and the Ontario Department of Agriculture, Lennox and Addington County Branch.

1. Any boy or girl between the ages of 10 and 18 years may become a member.
2. Each applicant will receive two pigs. The pure-bred Yorkshire Gilt must be retained for breeding purposes. The grade pig is to be sold before December 1st, and the money used to pay the loan at the Merchant's Bank.
3. The child's parents must agree to furnish a suitable pig pen and yard, and to supply the child with a sufficient quantity of suitable feeds to bring the pair of pigs to maturity, and also to supply $\frac{1}{8}$ to $\frac{1}{4}$ acre of pasture.
4. Each member must take care of his stock in person, and keep a record of the feed given and the pasture grazed. Where possible, a record of the weight of each pig should be kept, weight when received, and at stated intervals, so as to determine the gains. Suitable forms will be furnished.

5. Each member must furnish the bank with a final report of the season's work, which will include the amount of feed consumed, the gains in weight, cost of gain per pound, methods of handling and management.

6. The members of the club must agree to study the instructions issued by the Ontario Department of Agriculture.

7. Each member must, whenever possible, show at least one pig at the School Fair, and it is expected that the pigs will also be shown at the Township Fairs, and at a County Pig Fair.

8. The basis of award will be:

Class 1.—Feeding and Raising.

(a) 50 points will be given for the highest net profit per cwt.

(b) 25 points for type and finish, this being done with the bacon score card.

(c) 25 points for the best kept records, and the most comprehensive report.

Class 2.—Exhibition.

Best Registered Yorkshire Gilt.

DAIRY HEIFER CALF CLUBS. The Peel County Dairy Calf Club, which was organized last October, has a membership of 58. It was the only heifer calf club organized during the past season, and the rules as given may be of interest:

RULES.

1. The name of the Club shall be the Peel County Calf Club, 1918.

2. The objects of the Club shall be:

(a) To create a deeper interest among our farm boys and girls in the business of dairy farming.

(b) To bring into Peel County a large number of high-grade dairy cattle, and to distribute them at cost on easy terms of payment.

(c) To encourage the keeping of dairy records by the boy and girl members, and through them to introduce better methods of feeding and management of dairy cattle.

3. Peel County farm boys and girls between the ages of 10 and 18 inclusive, will be eligible to apply for a calf, and all applications must be signed by parent or guardian, who will be security for payment.

4. The Club shall be organized and directed by the Peel County Milk and Cream Producers' Association.

5. An extensive advertising campaign shall be carried on to explain and popularize the project and the required number of animals shall be bought by experts appointed for the purpose.

6. Calves will be bought some time in September, and they shall be 20 to 24 months of age. Only those of strong constitution, good dairy type, and from high producing stock, will be selected. Each animal will be bought subject to the tuberculin test.

7. Grade calves will be bought in every case, except where pure-breds are specially ordered. Before heifers are distributed to members they will be bred to the very best pure-bred dairy sires that can be obtained.

8. On a certain day all the animals will be brought to Brampton, and each member will be notified to call on the date set.

9. Before distribution, all calves will be marked with price and number, and each boy and girl will draw a number from a box and the calf corresponding to that number will be his or hers, subject to the conditions of the agreement.

10. The boy or girl member will give his or her note for 12 months, and shall bear interest at 6 per cent. It shall be endorsed by parent or guardian, who will guarantee payment of sum when due.

11. It is to be clearly understood that the heifer and her progeny shall be the sole property of, and shall be managed by the boy or girl with the advice of the parents. Provision will be made by a small assessment to cover loss of any member's heifer.

12. Arrangements have been made with the Dominion Bank to do the financing under the direction of the Peel County Milk and Cream Producers' Association.

13. Each member's name will be put on a special mailing list of the Department of Agriculture, to receive circulars and bulletins on the care of dairy cattle.

14. Prizes will be given to the members making the greatest profit from heifer, and special prizes will be offered for animals distributed to members.

15. The following fall an auction sale will be held just before the notes become due, and all cows are to be brought in to Brampton by member and put up for sale. Member will take money received and pay the note with interest, and keep the balance. If member prefers, he may bid in the cow and keep her and pay the note.

16. No calves will be handled except on the conditions given above, and no member will be allowed to pay cash for the animal at the beginning.

SHEEP CLUBS. The Caledon Sheep Club came into being early in the fall, has a membership of 14, and has as its constitution and rules, the following:

1. The name of the Club shall be the Caledon Sheep Club, 1918.

2. The objects of the Club shall be:

(a) To create a deeper interest among our farm boys and girls in the business of sheep raising.

(b) To bring into Peel County a large number of choice, pure-bred sheep, and to distribute them at cost, on easy terms of payment.

3. Caledon Township farm boys and girls, between the ages of 12 and 18, inclusive, will be eligible to become members.

4. The Club shall be organized and directed by the Agricultural Representative for Peel County, located at Brampton, and the money will be advanced by the Sterling Bank.

5. Two pure bred Oxford shearling ewes, in lamb, shall be distributed in December, to each member. Members will be notified to call at a central point (Caledon), on a certain date to receive their sheep. Each pair will be marked with a price and number and member will draw a number from box and sheep corresponding to that number shall be his or hers, subject to rules of Club.

6. Members who wish to do so may pay cash for sheep at time of delivery, or member may give a note for 10 months, endorsed to the satisfaction of the bank, by parent or guardian, and bearing interest at six per cent.

7. The ewes will be registered in the name of member, and ewes and their progeny shall be sole property of member. Arrangements will be made to assist members with the sale of their surplus stock, and with bringing in pure-bred sires for use on members' flocks.

8. The Department of Agriculture will supply bulletins, etc., relating to care and management of sheep, and forms on which to keep simple records of feed, etc. These records must be carefully kept and turned in to the Agricultural Representative at the end of ten months.

9. The Club will, by means of a small assessment, insure the ewes that have been distributed against loss by death during the first ten months, for an amount equal to one-half of the original cost of ewes.
10. Prizes will be offered to members for best care, records and profits from sheep, and Fall Fair Boards will be encouraged to give special prizes for sheep raised by Club members from ewes distributed.

GENERAL

In addition to the activities of the Agricultural Representatives already outlined, a great deal of assistance and direction has been given to the organization of Farmers' Clubs, Farmers' Co-operative Associations, Live Stock Shipping Associations and Agricultural and Improvement Associations, all of which have for their object the betterment of conditions on the farm.

The Representatives have also attended the series of meetings as arranged through the Boards of Agriculture in so far as their programme and timetable would permit. Special meetings have been held and short courses of two days' duration have been conducted in live stock judging. These are reported elsewhere in this report. The Representatives in Northern Ontario have assisted in the organization of Live Stock Improvement Associations through which the farmers are able to take advantage of the Dominion Government's policy of loaning pure-bred male animal as a means of improving the live stock of the district.

The Representatives have also rendered a good deal of assistance in the marketing of wool co-operatively and in the distribution of the wheat in connection with the spring wheat campaign inaugurated last season. Particulars of these have already been mentioned.

In order to give some idea of the extent to which the 47 offices are being used by the farmers, the correspondence handled during the year, the number of meetings addressed by the Representative, and the number of people with whom the Representative came in direct contact in the County apart from School Fair Work and personal visits to the farms, the following figures have been compiled:—

	Total	Average
Number of letters received.....	74,307	1,581
“ “ written	79,242	1,686
“ circular letters mailed.....	140,483	2,989
“ incoming telephone calls.....	66,505	1,415
“ visitors at office.....	67,022	1,426
“ meetings held in office.....	1,363	29
“ bulletins and reports distributed.....	52,969	1,127
“ miles travelled by auto.....	406,926	8,658
“ meetings addressed by representative.....	1,363	29
“ in attendance at such meetings.....	95,880	2,040

CO-OPERATION AND MARKETS BRANCH

The greater part of the co-operative business carried on by the Farmers' Organizations over the Province is perhaps included in non-incorporated Farmers' Clubs and similar organizations. During the last year, however, an increasing number of these organizations have become incorporated under the co-operative part of The Ontario Companies Act. It is being generally recognized that incorporation is necessary as a safeguard to the proper conduct of the business, especially when the volume of trade carried on by a concern reaches considerable proportions.

All applications for incorporation of co-operative companies pass through this office in order to determine whether such is entitled to use the word "co-operative" in the trade name. In this connection the company submits proposed by-laws when application for incorporation is made. Thus an opportunity is afforded of suggesting suitable by-laws for a co-operative company.

NAME AND ADDRESS OF CO-OPERATIVE COMPANIES

Alfred Co-operative Association, Alfred, Ont.
Amherstburg Farmers' Co-operative Association, Amherstburg.
Beamsville District Farmers' Co-operative Association, Beamsville.
Bainsville Farmers' Co-operative Co., Bainsville.
Bloomfield Milling Co-operative Co., Bloomfield.
Burford Milk Producers, Burford.
Curran Co-operative Association, Curran.
Camden Farmers' Co-operative Association, Camden.
Enterprise Farmers' Co-operative Association, Enterprise.
Co-operative Association of Fournier, Fournier.
Frontenac Farmers' Co-operative Association, Kingston.
Kent Bridge Farmers' Co-operative Society, Kent Bridge.
Keyser Co-operative Association, Arkona.
Kenora District Co-operative Clover Seed Growers' Association, Oxdrift.
Co-operative Association of Lefaivre, Lefaivre.
Lambeth Farmers' Co-operative Association, Lambeth.
Longueuil Farmers' Co-operative Association, L'Original.
Maple Leaf Co-operative Association, Palmerston.
Northern Co-operative Co., Ltd., Rydal Bank.
Norfolk Co-operative Association, Simcoe.
Odessa Farmers' Co-operative Association, Odessa.
Co-operative Association of Plantagenet, Plantagenet.
Peterboro Co-operative Society, Peterboro.
Progressive Farmers' Co-operative Association, Norwich.
Richmond Farmers' Co-operative Association, Napanee.
Roblindale Farmers' Co-operative Association, Roblindale.
Co-operative Association of Sydenham, Sydenham.
Square Deal Co-operative Creamery Co. of South Cayuga, Ltd., Cayuga.
Co-operative Association of St. Francis, St. Francis.
St. Isidore Co-operative Association, St. Isidore.
Tamworth Farmers' Co-operative Association, Tamworth.
Wilton Farmers' Co-operative Association, Wilton.

Companies and Associations of a co-operative nature which are not incorporated are numerous over the Province and are increasing so rapidly that it is impossible to keep up to date records of the same.

These include:—

CO-OPERATIVE FRUIT ASSOCIATIONS (Commercial, 58 in number)

Fruit marketing conditions during the war years have not been conducive to great activity on the part of these associations. With changed conditions, however, many of these associations which have been somewhat inactive will revive. The Ontario Co-operative Fruit Growers, Ltd., acting as a central for the local associations, purposes again hiring a manager and continuing operations.

EGG CIRCLES (50 in number)

The reports show that the total annual business of these Circles amounted to \$122,879.29. This is an average of \$2,457.58 for each Circle. The total number of members is 2,233.

The Egg Circle movement in Ontario has been more directly in charge of the Poultry Division of the Dominion Department of Agriculture. Plans are now in preparation whereby the Dominion and Provincial Departments will unite in enlarging and prosecuting co-operative marketing of poultry products.

BREEDERS' CLUBS (91 in number)

There are two classes of Breeders' Clubs, first, those which co-operate in obtaining a pure-bred male through the assistance of the Live Stock Branch of the Department of Agriculture, Ottawa, and second, those whose object is the promotion of the interests of a special breed in the district through propaganda, pure-bred males, auction sales of pure-bred animals, etc.

The various breeds are represented as follows:—

Shorthorn	30	Clubs	Poultry	1	Club
Berkshire	1	"	Ayrshire	8	"
Shropshire	1	"	Hereford	1	"
Leicester	1	"	Yorkshire	1	"
Holstein	24	"	General	15	"
Clydesdale	7	"			
Jersey	1	"	Total	91	"

SEED CENTRES

During the past there have been organized in Ontario some thirty or more Seed Centres for the production of pedigreed seed. Most of this seed is produced under the rules of the Canadian Seed Growers' Association. At the present time, although most of these associations are still in existence, only about four have seed for sale. Plans are under way to revise the rules regarding production of registered seed, whereby these associations would be in a position to produce seed in commercial quantities and so enlarge the usefulness of associations.

MILK AND PRODUCTS

Before this Branch was established there were many Farmers' Organizations connected with the dairy industry, and of the 1,000 cheese factories and 600 creameries in the Province many are owned by the patrons. The condenseries, milk powder factories and other large concerns are owned by private capital. The Producers' Association acts as the agent of the farmer in dealing with such companies. There is only one Producers' Milk Distributing Company in the Province, which is being operated with entire success.

Of the Dairy Companies recently organized in Northern Ontario and which give promise of success are the Sudbury Co-operative Creamery Co., of Sudbury, and the Producers' Co-operative Creamery Co., at Lavallee.

GENERAL ORGANIZATIONS

There have been organized over the Province many co-operative organizations of a general nature. Reference to the list given above under the incorporation of co-operative companies will indicate a wide extent of co-operative business in the Province. The history of many of these individual companies gives ample

evidence of the benefits of agriculture to the district in which they are organized. Reference to some of these will be made later in this report.

Besides the above organizations there are:

- Vegetable Growers' Associations.
- Corn Growers' Associations.
- Potato Growers' Associations.
- Onion Growers' Associations.
- Tobacco Growers' Associations.
- Bean Growers' Associations.
- Sugar Beet Growers' Associations, etc.

Some of these are strictly commercial, that is, actually carrying on trade in one or more articles. Other associations, such as, Bean Growers', Tobacco Growers', Sugar Beet Growers' Associations, etc., act as agent of the growers with regard to contracts with the buyers.

FARMERS' CLUBS

On account of the rapid increase in organization of Farmers' Clubs over the Province it is difficult to give the exact number of these organizations. At the present time, however, there are approximately 600 clubs in active operation, the greater proportion of which have done more or less business in both buying and selling. The following list will give approximately the number of Farmers' Clubs in each County:

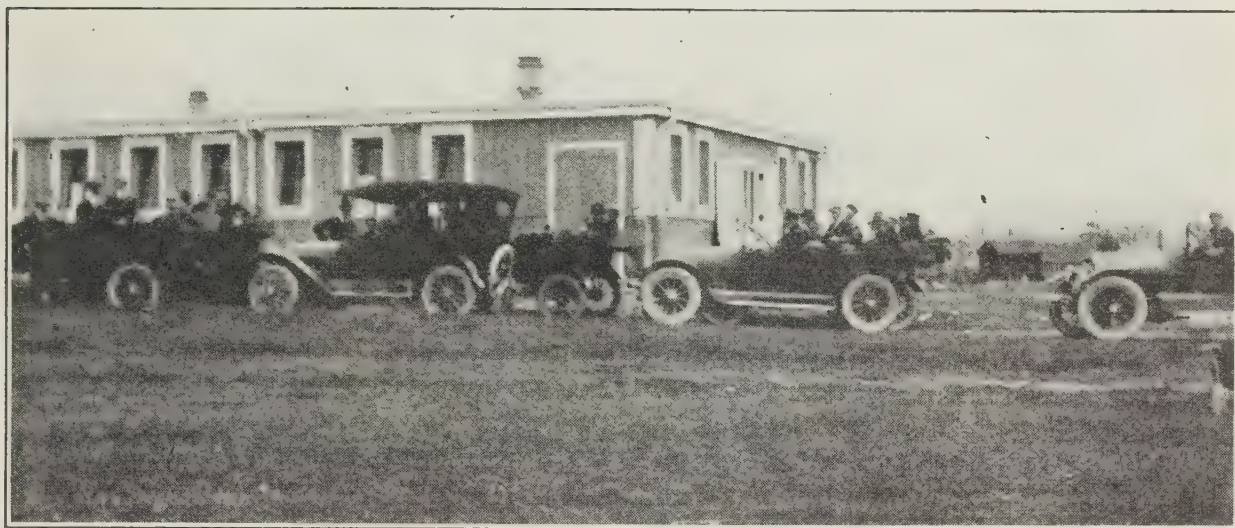
Algoma (District)	11	Middlesex	25
Brant	9	Muskoka	5
Bruce	28	Norfolk	12
Carleton	1	Northumberland	3
Dufferin	1	Ontario	26
Dundas	12	Oxford	28
Durham	13	Peel	11
Elgin	13	Peterboro	15
Essex	15	Rainy River	3
Frontenac	4	Renfrew	8
Glengarry	14	Simcoe	19
Grenville	4	Sudbury	5
Grey	11	Thunder Bay (District):	
Haldimand	3	Fort William	5
Halton	9	Port Arthur	4
Hastings	7	Timiskaming	4
Huron	17	Victoria	13
Kenora (District)	7	Waterloo	11
Kent	26	Welland	6
Lambton	56	Wellington	13
Lanark	9	Wentworth	4
Leeds	6	York	25
Lennox & Addington	9		
Lincoln	5		558
Man'toulin Island	13		

To date most of the business of the clubs has been in the buying of farm supplies, such as binder twine, feeds, coal, sugar, and such articles as can be purchased and distributed with comparative ease. and where distribution can take place directly from the car. An increasing number of clubs are acquiring a warehouse where such materials can be stored. and distributed as called for by the members. This adds to the facility and usefulness of the business, the club being then in a position to purchase in wholesale quantities before the members have filed orders for the total amount of the shipment. Where there is no such store-

house usually the club cannot make the purchases until the members have clubbed enough orders to cover the total car load.

Many of the clubs make their purchases through the United Farmers' Co-operative Co., Ltd., Toronto. This Co-operative Company was organized to act as a wholesale house for the clubs and associations over the Province, and according to its annual statement did a business last year of \$1,765,378.49

Reports from some 51 farmers' clubs give a total business of \$1,211,348.00 for the year for these clubs. This is an average of \$23,751.00 for each club. Although this is in excess of the average for the Province it is further indication of the amount of co-operative business being carried on.



Farmers auto trips are becoming a popular source of pleasure and education.

LIVE STOCK SHIPPING

Although the bulk of the business of Farmers' Clubs in the past has been in purchasing supplies there is more and more the tendency of co-operative selling of farm produce. This is more especially evident in the matter of live stock shipping. During the year an officer of this Branch has devoted his time toward the promotion of co-operative live stock shipping. Four years ago there were practically no organizations shipping live stock. At the present time it is estimated that at least 200 Farmers' Clubs and other organizations are shipping co-operatively, and during the year two million dollars' worth of such shipments have reached the Toronto market. Some of the clubs, of course, have made only occasional shipments of stock while others have been shipping regularly for a year or more. On some lines of railway, notably in Grey, Dufferin and Bruce Counties, live stock is shipped co-operatively from practically every station on the line. All indications point to greatly increased activity in this form of co-operative marketing.

GROUP ORGANIZATIONS

As intimated last year in connection with Farmers' Clubs there is a tendency toward the formation of county or group organizations with the clubs as units. Some of these group organizations do not function as business concerns but act as a clearing house in clubbing orders or making shipments, the actual business being carried on by the individual clubs. For instance, there are a number of instances where from two to five clubs co-operate in the shipping of live stock under one shipper. Other such group organizations are formed from the officers

of local clubs and carry on only such work as can be successfully handled by the local clubs co-operating. It is difficult to give a concrete idea of the value of co-operative organizations without citing particular instances, and the following instances may help to give a clear idea of what is occurring over the Province. These instances could be multiplied many times:—

The Northern Ontario Co-operative Association at Rydal Bank, four miles from the main line, Sudbury to the Soo, consisting of 230 members, has conducted a general store, and large warehouse, for over a year, supplying members with feeds, seeds, fresh fruit from the Grimsby district, etc., etc. During the year has purchased and installed a new flour mill.

The company sells goods to its members at regular trade prices, declaring a co-operative trade dividend. The last year's report is not to hand, but indications during the year pointed to a successful trade dividend for the members, besides supplying them with a cash market for their produce. This is especially valuable to the farmers of this district, situated as they are some distance from their markets.

Brant Farmers' Co-operative Company, organized in 1917, own a warehouse near the track, and during the past year purchased for their members approximately \$37,000 worth of goods.

Paisley Clubs. Four clubs in the neighborhood of Paisley co-operate in employing a manager who ships hogs, sheep and cattle for all the clubs. Fully 75 per cent. of all the hogs of the district are shipped co-operatively, and during the past season, when feed was scarce, the district had little difficulty in obtaining supplies because of the existence of these clubs. The following materials were purchased through this organization:

Corn, 3 cars.

Oil cake, several cars.

Western screenings, several cars.

Mill feed and flour, many cars.

Gasoline, several cars, besides binder twine, sugar, salt, coal oil, etc.

The Erie Co-operative Co., at Leamington, which is an amalgamation of three successful co-operative organizations, handling early vegetables and supplies. One hundred and eighty members last year did one-half million dollars' worth of business and at the present time control practically all the marketing in this rich agricultural district.

Kenora District Co-operative Clover Seed Growers' Association, Ltd., at Ox-drift, has been successful in their first year of co-operative marketing of clover seed, \$15,000 worth being handled during the year 1917-18. This is an especially beneficial concern in that the growers are a long distance from their market, seed having been sold as far East as Prince Edward Island. Through this organization the seed of the district has been well advertised through prizes won at the Seed Fairs. The following prizes would indicate what has been done in this direction:

Guelph, 1916, 6 out of 12 prizes offered.

Ottawa, 1917, 13 out of 15 prizes offered.

Quebec, 1916, two firsts.

Guelph, 1916, first in alfalfa.

Guelph, 1917, 11 out of 14 prizes offered.

Guelph, 1917, Championship Red Clover and Keith Trophy for best bushel clover seed, being won for second time.

The quality of the seed grown in this district and the facilities for cleaning by the association have been the main factors in making the production of this crop in the district a success.

Kent Farmers' Produce Co. reorganized a year ago on a co-operative basis. The stock in the company is all owned by farmers and has been in business upwards of twenty years. Previous to reorganization profits were distributed in proportion to capital invested. Since reorganization profits have been distributed on a co-operative basis. This company owns flour mill, elevator and store at both Blenheim and Ridgetown and do an annual business in excess of one-half million dollars, not only in milling, selling beans, etc., but in buying farm supplies. This is one of the oldest successful associations in the Province and since reorganization on a co-operative basis gives promise of being even more useful than in the past.

The following report of *Lambton County* indicates the extent of co-operation in that district:

Name	Date of Organization	Membership	Nature and volume of business.	How financed and managed.
Lambton County Co-operative Association.	Incorporated May, 1916	721 (42 Farmers' Clubs)	Co-operative buying of farm supplies. Volume of business, \$120,092.28.	Capital notes of \$25.00 each. Paid Manager.
Sarnia Independent Vegetable Growers' Association.	1907	77	Seed potatoes, shipping packages and fertilizers.	Salesman supplies capital. Receives 8% commission on sales.
Lambton Vegetable Growers' Co-operative Association.	1911	100 (Inc.)	Dealers in vegetables and truck growers' produce.	Salesman supplies capital. Receives 12½% commission on sales. Members' produce paid for weekly.
Forest Fruit Growers' Association.	1911	30 (Inc.)	Spray materials and co-operative apple selling association.	Paid Secretary as Manager. Members receive actual amount of produce sold, less cost of handling.
Thedford Fruit Growers' Association.	1912	14 (Inc.)	Spray material, fruit packages and Supplies. Fruit selling association.	Note capital, \$1,400. Fruit sold by Manager and returns pooled.
Inwood Fruit Growers' Association.	1912	18	Sulphur, spray material and barrels. Selling apples.	Paid Manager. Members receive actual amount of produce sold, less cost of handling.
Watford Fruit Growers' Association.	1912	22	Sulphur, spray materials and barrels. Selling apples.	Paid Manager. Members receive actual amount of produce sold, less cost of handling.
Wyoming Fruit Growers' Association.	1912	17	.....	.....
United Farmers' Clubs.	1916	13 Clubs	Co-operative buying of farm supplies.	Paid Manager on commission.

The co-operative associations in Lambton County are in a flourishing condition, each association dealing in the produce of its own district, such as vegetables in the vegetable district, apples and peaches in the fruit district, farm supplies in general for the county. The Farmers' Club movement is making a steady growth, both in number of members and clubs being organized.

The Lambton County Farmers' Co-operative Association statement shows the following increase for the past year:

27.2%	increase in number of Clubs.
30.8%	“ “ Membership.
30.0%	“ Note capital.
6.0%	“ number of members per Club.
35.0%	“ business transacted.

Leeds County Co-operative Association, organized in 1916, capitalized at \$10,000, and last year found it necessary to increase its capitalization, as all shares issued have been sold. It has 350 members, doing a business last year of over \$200,000. The company has three warehouses, at Lansdowne, Athens and Mallorytown. The association is divided into local branches, each having a local manager and secretary. All produce handled by the association is paid for when it is delivered to the organization by the members, with the exception of cattle, which are paid for when returns are received. Stock, especially hogs, are graded and paid for on the quality basis; poultry and eggs are paid for and sold f.o.b., shipping point. On the year's business the association made a profit of approximately \$2,000.00.

Sales of farm produce on the quality basis is practised by this association which has done a great deal to improve the general quality of all farm produce offered.

The *County of Grey* is well organized with regard to live stock shipping. Victoria Club, organized in 1915, shows the following progress:

From May to October, 1915, the club sold \$82,000 worth of live stock, in 1916 did a business of \$222,000, in 1917 sold \$250,000 worth of live stock, and in 1918 over \$300,000. This with a membership of only 86.

The Rockland Shipping Club has 327 members; did an annual business of \$263,000.

The Markdale Live Stock Shipping Association, composed of 14 clubs, sold \$60,000 worth of stock in 19 shipments.

The Ceylon Club did \$125,000 worth of business.

The Proton Station Club shipped \$103,000 worth of live stock.

An indication of the benefits resulting in organized marketing in Northern districts is given by the result of two creameries operating at Devlin and LaVallee. These are only about two miles apart. One is operated by a private company and the other by producers. In 1917, first year of organization, these two companies had a total number of patrons of 214 and in 1918, 308. Total business in 1917 was \$15,700, while in 1918 it amounted to about \$40,000, an increase which is very significant.

An instance of a district well organized is that at *Verner*, where three distinctive co-operative associations, are all thriving and through which immense benefits, both financial and otherwise, are derived. First there is a Farmers' Co-operative Organization, organized in 1911, a selling organization through which the members sell farm produce at a nominal cost of 2 per cent. commission. From the financial statement of 1918, this association was able to dispose of about \$60,000 worth of produce at a cost of \$1,400.

The second association of the district is La Caisse Populaire or People's Bank, which has a membership of 525 members. Deposits are received and interest paid thereon at 3 per cent. per annum; loans are made to members on promissory notes or other securities, which loans may be returned in instalments. In the history of this association not one dollar has been lost through loans not being repaid.

The third co-operative organization in the district is Le Magasin Co-operative De Verner, which owns and operates a general store. It has 212 \$25.00 shares, held by 180 shareholders. The annual business of this organization has increased from \$27,000 in the first year to \$65,000 in 1918.

There is perhaps no farming section in Sudbury district more prosperous than that at Verner and the cause of this may well be attributed to these co-operative associations. The farmers sell co-operatively, buy co-operatively and have a co-operative bank from which they can borrow when necessary. Although this is a fairly new settlement, yet when it comes to practical and efficient co-operation, many older communities might well profit by following its example.

SPRING WHEAT SEED

Among the war activities of the Department of Agriculture placed in charge of this Branch in co-operation with the Agricultural Representatives was the distribution of Marquis Seed Wheat, to take the place of the large loss in Fall Wheat production, due to adverse winter conditions in 1917-18. The world need for wheat was insistent, necessitating not only that production be maintained, but increased. Through the Organization of Resources Committee of Ontario 50,000 bushels of Marquis Spring Wheat Seed were purchased from the Seed Purchasing Commission of the Dominion Government. This seed was grown in Western Canada; shipped from Saskatoon and Moose Jaw, and delivered at distributing points over the Province, where deliveries were made to individual farmers. The following firms acted as local distributors, doing the work without cost, and distributing the seed to farmers at \$2.74 per bushel delivered, the price charged by the Department for the seed:

Chatham: The Canada Flour Mills Co., Ltd.

London: Hunt Bros., Ltd.

Woodstock: James Cullen.

Hamilton: Wood Milling Co.

Toronto: Campbell Flour Mills Co., Ltd.

Oshawa: Hogg & Lytle.

Port Perry: Hogg & Lytle.

Port Hope: H. Sculthorpe.

Peterboro: Campbell Flour Mills.

Lindsay: Spratt & Killen.

Barrie: Brown & Co.

Orillia: D. C. Thomson.

Newmarket: W. H. Eves.

Listowel: Hay Brothers.

Orangeville: E. C. Clark.

Durham: Rob Roy Cereal Mills.

Simcoe: Norfolk Co-operative Association.

Welland: Maple Leaf Milling Co.

Kemptville: Kemptville Milling Co.

St. Mary's: St. Mary's Milling Co.

Brantford: Dominion Flour Mills.

Alliston: L. Coffee & Co.

Stouffville: Stiver Bros.

Woodbridge: W. D. Matthews & Co.

Bolton: A. A. McFall.

Guelph: Jas. Goldie & Co., Ltd.

St. Catharines: Maple Leaf Milling Co.

Arthur: J. M. Roach.
Napanee: G. B. Curran.
Cooksville: Robert Noble, Norval.
Beeton: Aitken Milling Co.
Chesley: M. A. Halliday.
Stratford: Canada Cereal & Flour Mills Co.
St. Thomas: Empire Flour Mills.

Spring wheat in Ontario has not been an important crop. In spite, however, of possible decreased yields from the fields and other disadvantages, an excellent response was made to the appeal to grow wheat in place of mixed grains or other apparently better yielding crops, and altogether some 40,000 bushels of Marquis Spring Wheat was sown in the Province. An even larger acreage would have been sown but for the unfortunate late arrival of much of the seed, due to a variety of causes, chiefly transportation difficulties and weather conditions. Practically little of the seed arrived in proper time for seeding, and because of this many orders were cancelled by farmers. The spring opened very early in Southern Ontario, and the land in Essex and Kent, for example, was ready for seeding, while snow storms were delaying shipments in the North West.

The Eastern Counties of Ontario grow spring wheat every year, so that few of the cars of Western seed were distributed in that part of the Province. Agricultural Representatives report, however, that a larger acreage was sown as a result of this campaign, some counties increasing as much as 25 per cent.

In the Western Counties, however, remarkable results were achieved, some counties increasing the acreage 600 to 700 per cent. Brant Co., which usually grows 150 acres, this year had 1,000 acres. Elgin Co., usually with 20 to 30 acres, this year had 500 acres. Essex and Kent which previously had practically no spring wheat absorbed three cars of seed at 1,000 bus. per car, and seed was almost six weeks too late in arriving for these counties. Norfolk County sowed 1,700 acres, other counties reporting similar increases. Some counties report also the active co-operation of the County Councils; in Huron, the Reeve made a personal canvas, selling 440 bags of seed. Some Township Councils also offered prizes for growing spring wheat.

The season for growing this crop was very favorable, and this with the quality of the seed, brought excellent yields, reports of as high as 47 bus. per acre being received. No reports of poor yields have been received, and the average would be 30 bus. per acre.

Seed Sold	Acres Sown	Increased Yield	Approximate Value
40,000	26,000	780,000	\$1,500,000.00

FALL WHEAT SEED

During the early part of the Fall there appeared to be a shortage of Fall Wheat Seed. In order that there might be no lessening of seeding, the Department arranged for the importation of a quantity of seed from New York State. Dr. C. A. Zavitz, of the O.A.C., spent some time in locating sufficient quantity of suitable seed, and through this office it was offered to mills for distribution in their districts, the distribution to be at the same price as charged by the Department. The

following mills purchased a carload each on this basis, but the shortage was not as great as anticipated and only a small proportion of the seed was needed:—

Hamilton: Wood Milling Co.
Meaford: Georgian Bay Milling Co.
Mitchell: Stuart Bros., Ltd.
St. Mary's: St. Mary's Milling Co.
Bolton: A. A. McFall.
Dundas: Kerr Milling Co.
Napanee: G. B. Curran.
West Toronto: Campbell Flour Mills Co., Ltd.
Streetsville: J. H. Dracass.
Caledonia: Caledonia Milling Co.

REPORT OF THE VEGETABLE SPECIALIST

Lines of work, similar to that of former years, in regard to fungus and insect pests was carried out very satisfactorily during the past summer and important results of great value to the commercial market gardener were obtained.

CABBAGE ROOT MAGGOT

That Cabbage Root Maggot can be controlled by means of Corrosive Sublimate in the proportion of 1 oz. to 10 gals. of water has been demonstrated in various parts of the Province. It has been shown that to be most effective this substance must be applied from 4 to 6 days after the plants are set in the field and to obtain the best results should be carried on over a period of three weeks; application being made once each week. Many of our commercial growers throughout the Province used it very successfully this year. We have also been trying out a saturated salt solution for the control of this maggot, and, while definite conclusions have not been reached, enough results have been obtained to make it worth a special effort this coming season. If as satisfactory a result can be obtained with it as with the Corrosive Sublimate a distinct gain will be made as it would remove any danger of poisoning should someone become careless with Corrosive Sublimate.

ONION BLIGHT

Further experiments were carried on with this disease, using both Bordeaux Mixture and Formalin Solution, but so far nothing very satisfactory has resulted. It has been observed that this disease attacks the plant when the bulb is about one-third formed, apparently from lack of plant food and moisture. For this reason we should go more fully into the fertility requirements of the plant to see if the disease can be controlled by this means.

BLACK HEART OF CELERY

Further work on this disease, using one-half a pint of Black Leaf "40" in every 40 gallons of Bordeaux Mixture, was tried in several parts of the Province this year and found to control the disease. From our work this year it appears that the Tarnished Plant Bug, both in the adult and larva stage, is responsible for the spread of the disease, and Black Leaf "40" has this season thoroughly controlled all spread of it.

DUST MIXTURES

The experimental work on dust mixtures was carried on similar lines to last year but will need further work before we can give definite recommendations regarding it. It is much easier to handle and apply than Bordeaux Mixture, and if as satisfactory in results, will be valuable.

ONION MAGGOT

Measures to control both Onion Maggot and Radish Maggot and to consider their life history more fully were experimented in conjunction with Prof. Caesar, at Burlington. Very satisfactory work has been carried on and we hope this summer to obtain definite information with regard to the feeding habits of these two insects and their control.

CELERY BLIGHT

Celery blight control was carried on in several places, using Bordeaux Mixture in conjunction with various substances to act as a sticker. Distillate Paraffin Oil was used on one patch but was found to burn the leaves considerably, so its use was discontinued. A commercial substance known as Santax was used also and gave fair results. Bordeaux Mixture has become the recognized remedy for celery blight in the Province, and our work with it does not need further experimenting, but if some adhesive substance can be found which will keep it on the plant during a rainy spell, the cost of spraying the plants will be considerably lessened.

GENERAL WORK

A considerable amount of time was spent last spring in assisting in the Backyard Garden Campaign. Addresses were delivered in all parts of the Province and the Motion Pictures on Backyard Gardening shown to each audience. Many letters were also answered on this subject.

The garden survey of the Province was finished this summer and the report has shown very clearly that many market gardeners do not know what crops are paying them or how much it costs to produce them. It also shows that they are not making the best use of the Department's work in the control of the vegetable diseases and insect pests. However, since the visit of the man taking the survey, many of them are looking to us for information on various subjects in connection with garden work. Many of our florists, this past year, have been growing lettuce and tomatoes in their greenhouses and they have asked for considerable assistance regarding the culture of these crops.

Much work should be done on soil fertility as concerned in the growing of vegetable crops. Many growers do not appear to understand what plant foods are required by each crop, and whether they are in the soil. Many do not know just what crops their land will best produce. This fact often leads to a crop failure. Many of them do not study the best methods of marketing their produce and glut the market, causing financial loss to their neighbors as well as themselves.

MONTEITH DEMONSTRATION FARM

In common with most other districts in Northern Ontario this farm suffered from exceedingly unfavorable weather throughout the season of 1918 and the result was most disastrous both to crops and experimental work. Valuable results were however secured in some lines. O.A.C. No. 21 barley proved its suitability to the climate as did also O.A.C. No. 3 oats. As an early variety the latter seems particularly valuable to Northern Ontario and over 1000 bushels, part of which were grown at the farm, were cleaned and sold to the settlers. It was also found that O.A.C. 21 barley and O.A.C. No. 3 oats gave good results when grown together for feed purposes. Hay was also a success. Eighteen acres averaged over two tons per acre and went as high as three in some areas. Silage likewise was a good crop.

The live stock department of the farm is being well developed. The transfer of the milking shorthorns from the O.A.C. has made a valuable addition to the milking shorthorn herd at this farm. In all there are now 25 females over one year and six under one year. There is also the herd sire Bowling Duke (imp) and three young bulls. The male calves are disposed of at a moderate price to help develop the live stock of the district.

Forty-five pure-bred Shropshire sheep are carried and during the year nine pure bred ram lambs were sold to settlers for breeding purposes. The flock is headed by an imported ram.

In swine six pure-bred Yorkshire sows are kept on the farm and 47 young pigs were sold for breeding purposes.

The farm is also playing a large part in the agricultural educational work in the district. After a lapse of a couple of years the Demonstration Day excursion was renewed and over 2000 people visited the farm, studied the crops and stock and listened to practical and inspirational addresses by prominent speakers. In September a three weeks domestic science and health course was started and 36 students were enrolled and proved very helpful. A teacher's convention and other such gatherings also took advantage of the buildings on the farm as a place of meeting.

During the year hundreds of letters were written giving information in response to inquiries on live stock, crops, cultivation, bush work, buildings, equipment and so forth.

All of which is respectfully submitted.

GEO. S. HENRY,

Minister of Agriculture.

Ontario Department of Agriculture

FORTY-FOURTH ANNUAL REPORT

OF THE

Ontario Agricultural College

AND

Experimental Farm

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1919

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To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in
the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present the Forty-fourth Annual Report of the Ontario
Agricultural College and Experimental Farm.

GEO. S. HENRY,

Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,

TORONTO, 1919.

THE ONTARIO AGRICULTURAL COLLEGE, GUELPH

HON. G. S. HENRY, *Minister of Agriculture, Toronto.*

FACULTY OF INSTRUCTION, 1918.

(All, except the President, arranged in order of Seniority.)

G. C. CREELMAN, B.S.A., LL.D.	President
H. H. DEAN, B.S.A.	Professor of Dairy Husbandry
C. A. ZAVITZ, B.S.A., D.S.C.	Professor of Field Husbandry
J. HUGO REED, V.S.	Professor of Veterinary Science
R. HARCOURT, B.S.A.	Professor of Chemistry
MISS M. U. WATSON	Director of Home Economics
JOHN EVANS	Professor of Manual Training
C. J. S. BETHUNE, M.A., D.C.L.	Professor of Entomology and Zoology
W. R. GRAHAM, B.S.A.	Professor of Poultry Husbandry
W. H. DAY, B.A.	Professor of Physics
J. W. CROW, B.S.A.	Professor of Horticulture
J. E. HOWITT, M.S.A.	Professor of Botany
D. H. JONES, B.S.A.	Professor of Bacteriology
O. J. STEVENSON, M.A., D.Paed.	Professor of English
WADE TOOLE, B.S.A.	Professor of Animal Husbandry
B. N. GATES, Ph.D.	Professor of Apiculture
L. CAESAR, B.A., B.S.A.	Associate Professor of Entomology
W. J. SQUIRRELL, B.S.A.	Associate Professor of Field Husbandry
J. P. SACKVILLE, B.S.A.	Associate Professor of Animal Husbandry
MISS ANNIE ROSS, M.D.	Lecturer in Physiology, Home Nursing and Psychology
H. H. LEDREW, B.S.A.	Lecturer in Economics and English
WM. HUNT	Lecturer in Floriculture
E. W. KENDALL	Lecturer in Manual Training
H. L. FULMER, B.S.A.	Lecturer in Chemistry
R. R. GRAHAM, B.A., B.S.A.	Lecturer in Physics
R. E. STONE, B.Sc., Ph.D.	Lecturer in Botany
A. W. BAKER, B.S.A.	Lecturer in Entomology
T. H. LUND, B.S.A.	Lecturer in Bacteriology
F. N. MARCELLUS, B.S.A.	Lecturer in Poultry
A. LEITCH, B.S.A.	Lecturer in Farm Management
G. H. UNWIN, B.S.A.	Lecturer in English and French
A. L. GIBSON, B.S.A.	Lecturer in Chemistry
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R. C. MOFFATT, M.A.	Lecturer in Physics
W. L. IVESON, M.A.	Lecturer in Geology and Chemistry
J. A. NEILSON, B.S.A.	Lecturer in Horticulture
MISS M. A. PURDY	Demonstrator in Chemistry
MISS JEAN RODDICK	Instructor in Domestic Science
MRS. F. DOUGHTY	Demonstrator in Domestic Art
MISS ALTA V. DICKEY	Instructor in Domestic Art
W. H. WRIGHT, B.S.A.	Demonstrator in Botany
MISS BELLE MILLAR	Demonstrator in Dairying
MISS NETTA M. NIXON	Demonstrator in Domestic Science
G. J. SPENCER, B.S.A.	Demonstrator in Entomology (Enlisted)
R. J. SKELTON, B.S.A.	Demonstrator in Dairying (Enlisted)
W. H. SCOTT, B.S.A.	Demonstrator in Physics
MISS H. THEODORA JOB	Instructor in Normal Methods
MISS E. JENNIE ROGERS	Demonstrator in Laundry and Household Administration
MISS RONA FRASER	Supervisor of House Practice
H. G. CRAWFORD, B.S.A., M.S.	Demonstrator in Entomology
A. DAVEY, B.S.A.	Demonstrator in Bacteriology
E. S. SNYDER, B.S.A.	Demonstrator in Poultry
H. L. DAVIS, B.S.A.	Demonstrator in Dairying
E. HEARLE, B.S.A.	Resident Master and Instructor in English
A. H. MUSGRAVE	Instructor in Athletics

COLLEGE OFFICERS.

G. C. CREELMAN, B.S.A., LL.D.	President
S. SPRINGER	Bursar
S. H. GANDIER, B.S.A.	Secretary
E. HEARLE, B.S.A.	Resident Master
MISS J. GARDINER	Librarian
MISS A. O. HALLETT	Assistant Librarian
W. O. STEWART, M.D.	Physician
MRS. M. CUNNINGHAM	Matron
MISS M. MONTGOMERY	Dietitian

ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM

1918

To the Honourable the Minister of Agriculture:

SIR,—I have the honour to submit herewith the Forty-fourth Annual Report of the Ontario Agricultural College and Experimental Farm, including the work of Macdonald Institute, for the year 1918.

1918.

In many ways, this has been the most remarkable year in history. Terrible battles were fought in Europe, and with terrible results; thousands and thousands of our men were killed and wounded while the towns and cities of Belgium were laid in ruins and the country devastated.

We had been asked to stimulate production in every way, with the result that with the splendid spring for work, the largest possible acreage was planted in Ontario. The summer and autumn were also favourable, with the result that the largest crop ever grown in this Province was safely harvested in the autumn of 1918.

Ontario was therefore, able to materially help in supplying food to the Allies, and is still doing so.

Then on November 11th our armistice was signed and fighting ceased. Up to the very last our college men were engaged in the battles in France and other parts of the world and we have now on record 96 killed, and as many more casualties.

With the stopping of war, new students began dropping into the college courses, and by the end of the year we had more than 200 students in all regular classes; we also expect a number of old students back at the beginning of the year to start again on their college work.

A TRIP ABROAD.

In August, the President of the College visited England and France examining the Agricultural conditions of the two countries and securing data from which to advise Ontario farmers for 1919. This material was presented to the Experimental Union and through the Agricultural Press and in various addresses throughout the Province.

I saw about 100 College men in England or France, and we were pleased to see that they were doing their part in the interests of the Empire. Many have been decorated by the King for bravery on the field, and we hope soon to have a complete list of all the honors received by our college men.

I also saw Macdonald Institute graduates and undergraduates serving in canteens and hospitals as Dietitians and as Voluntary Aid Workers.

INFLUENZA.

This institution proved no exception to the rule when the terrible scourge of influenza passed through Canada in the fall. Men and women were alike affected and scores of cases had to be taken to the hospitals. We were perhaps fortunate in not having a single death in the student body either man or woman, and with the exception of a few days at Thanksgiving the college was not closed. Both students and staff fought the disease hard, and it is only fair at this time that I should pay a special tribute to the students, both boys and girls who worked day and night to help those who were ill with the disease.

Just before Christmas, another outbreak threatened and the students were all sent home earlier than usual; examinations were written on their return and no cases have developed at the opening of the year.

WOMEN STUDENTS.

For the first time in the history of the Institution young women were admitted to our regular long courses in Agriculture. Five in all have started with the work, and so far are keeping well up with their classes.

In the spring, demand came for a short course in practical farming, and with some foreboding we arranged such a course. From the very beginning, however, we saw that with the quality of student who was offering there could be no doubt about the success of the experiment. Thirty women, all in earnest, and all willing to do hard work assembled and were taken care of in the College dormitory. They carried their own trunks to the third floor, took care of their own rooms and refused masculine help of any kind. They arose at five o'clock every morning and took entire charge of the milking, cleaning of stables, feeding and currying of the horses, and so forth, and so forth. After breakfast again, they went to the fields and gardens and did a full day's work each and every day. At the end of the three weeks their muscles were hard, they were able to do a hard day's work. They learned to milk cows, to do chores and to make gardens. Immediately the course was over they readily found engagements on farms and did excellent work for the balance of the season.

COLLEGE WORK AND PROGRESS.

The attendance at short courses in 1918 was as follows:—

Dairy Courses	61
Stock and Seed Judging	137
Poultry Raising	31
Horticultural Courses	57
Apiculture	30
Drainage and Drainage Surveying	13
Farm Power	154
Farmerette Course	31
Total	514

STOCK JUDGING.

On November 20th I received the following telegram from Chicago:—

“Ontario first, Begg high man, MacKenzie 3rd, Lamont 5th.”

This meant that we had again won the Live Stock Trophy at Chicago. It will be remembered that some years ago our students won three years in succession

and the college became the permanent owner of the bronze bull. This year, with renewed energy, five students of our Senior class again attempted to win, and met with gratifying success. The new trophy is now mounted in the college library where it will remain until next year when it will be competed for again. It becomes the property of the Institution winning it three times.

The following men composed the team:—

R. E. Begg, Tiverton, Ont.	D. J. Matheson, Lucknow, Ont.
C. F. MacKenzie, Guelph, Ont.	W. C. Caldwell, Carp, Ont.
C. Lamont, Mount Brydges, Ont.	

WINNINGS.

	Points.
1st in aggregate score judging all classes. Winners of the bronze bull and the bronze medal	3,865
R. E. Begg, high man in aggregate score, second in sheep and second in swine.... Winner of the gold medal and the blue ribbon and five shares of stock in the American Shropshire Association.	801
C. F. MacKenzie, 1st in beef cattle and 3rd in swine and 3rd in grand aggregate score	791
Winner of the white ribbon.	
C. Lamont, 1st in swine, 4th in beef cattle and 5th in grand aggregate score	779
Winner of silver cup, for judging swine and the yellow ribbon.	
D. J. Matheson, 3rd in sheep, 6th in swine and 8th in grand aggregate score	768
Winner of five shares of stock in the American Shropshire Breeders' Association.	
W. C. Caldwell, 8th in horses, 8th in swine and 7th in sheep, 14th in grand aggregate score	726

Besides this the team took first place in judging sheep and swine and won two bronze medals given for high score in each class.

RESULT OF STUDENTS' JUDGING COMPETITION, PROVINCIAL WINTER FAIR, 1918.

<i>Horses.</i>	<i>Sheep.</i>
1. J. D. Dyer 155	1. D. F. Aylesworth 191
2. F. J. Webster 153	2. C. Tice 188
3. R. C. V. Stuart 141	3. M. F. Cook 175
4. A. W. Mead 140	4. J. M. Shales 145
5. L. E. Dymont 137	5. W. C. Hopper 136
<i>Dairy Cattle.</i>	<i>Beef Cattle.</i>
1. E. C. Stillwell 159	1. F. M. Snyder 170
2. W. A. Fleming 158	2. R. C. V. Stuart 161
3. L. E. Dymont 156	3. I. S. Chapman 160
4. J. B. Hanmer 153	4. J. R. Higgins 141
5. W. B. Blakely 152	5. G. S. Grant 139
<i>Swine.</i>	<i>Poultry.</i>
1. W. R. Gunn 185	1. G. B. Snyder 250
2. J. R. Higgins 179	2. C. F. Luckham 249
3. C. Flatt 170	3. J. A. Hall 245
4. S. W. King 166	4. R. C. Frith 233
5. P. L. Sanford 165	5. C. C. Eidt 232

Class 98 Inter-Year Trophy—Standing.

Fourth year 4,292	Third year .. 3,639	} teams not complete.
Second year 4,031	First year ... 1,874	

ATTENDANCE.

The attendance in all courses is keeping up very well, and the new course in Farm Power was particularly well attended. It looks as though this subject has come to be one of importance in Practical Agriculture.

The following are the figures in each course held throughout the year:—

General Course	315	
Specialists in General Course Work	5	
Manual Training (One Year Normal Course)	8	
Dairy Courses	61	
Stock and Seed Judging	137	
Poultry Raising	31	
Horticulture Courses	57	
Apiculture	30	
Drainage and Drainage Surveying	13	
Farm Power	154	
Farmerette Course	31	
	842	
Domestic Science (at Macdonald Institute)	379	
Summer Courses—High School—First Year, 31; second year, 9; third year, 9..	49	
Public School teachers, first year	191	
Public School teachers, second year	124	
School for Rural Leadership	49	
Farm Mechanics	10	
Course for School Inspectors	78	
	501	
Total	1,722	

ANALYSIS OF COLLEGE ROLL (GENERAL COURSE), 1918.

From Ontario.

Brant	5	Huron	3	Perth	7
Bruce	3	Kent	3	Prescott	1
Carleton	21	Lambton	8	Prince Edward	4
Dufferin	4	Lanark	5	Rainy River	1
Dundas	2	Leeds	4	Renfrew	3
Durham	4	Lennox & Addington..	3	Russell	2
Elgin	4	Lincoln	5	Simcoe	7
Essex	8	Middlesex	16	Stormont	1
Frontenac	4	Muskoka	4	Thunder Bay	2
Glengarry	3	Nipissing	1	Victoria	3
Grenville	4	Norfolk	4	Waterloo	10
Grey	5	Northumberland	3	Welland	5
Haldimand	4	Ontario	9	Wellington	24
Halton	3	Oxford	9	Wentworth	11
Hastings	4	Parry Sound	1	York	32
Leeds	3	Peel	5		
				Total from Ontario—	278

From Other Provinces of the Dominion.

Alberta	1	New Brunswick	3	Prince Edward Island	6
British Columbia	6	Nova Scotia	6	Saskatchewan	1
				Total from other	
				Provinces	23

From Other Countries.

Argentine Rep.	1	England	2	U.S.A.	7
B.W.I.	1	Scotland	1	U.S. of Columbia	2
				Total from other	
				Provinces	14

Ages and Religious Denominations.

The limits of age in the General Course, 1918, ranged from 17 to 46 years. The average age was 21.

Anglican	51	Friends	3	No Religion	6
Armenian Christian...	1	Gospel Tabernacle ...	1	Presbyterian	95
Baptist	23	Hebrew	2	Roman Catholic	14
Christadelphian	1	Lutheran	6	United Brethren	2
Congregational	2	Mennonite	3	Universalist	1
		Methodist	103	Unitarian	1

DEGREES AND DIPLOMAS IN AGRICULTURE.

The following students graduated in 1918 with the degree of Bachelor of the Science of Agriculture (B.S.A.).

Chemistry and Physics Option.

Geddes, W. F., Kinburn, Ont.

Biology Option.

J. A. Flock, Burlington, Ont.

Mitchener, A. V., R.R. 3, Port Rowan, Ont.

Robinson, W., 984 Ossington Ave., Toronto.

Horticulture Option.

Jones, W. M., 307 King St., London.

Patterson, C. F., R.R. 8, Watford, Ont.

Tomlinson, A. H., O.A.C., Guelph.

Dairy Option.

Davis, H. L., Forbes Ave., Guelph.

James, N., R.R. 2, Dublin, Ont.

Parfitt, E. H., 1066 82nd St., Brooklyn, N.Y.

Bacteriology Option.

Lord, S. N., 35 Lakeview Ave., Toronto, Ont.

McCurry, J. B., Hurdman's Bridge, Ont.

Agriculture Option.

Arnold, G. J., 206 Victoria Rd., Old Charlton, Kent, England.

Cooper, T., R.R. 1, Wallenstein, Ont.

DeLong, G. E., Rossmore, Ont.

Elder, R. C., Canfield, Ont.

Ferguson, F. L., Parkhill, Ont.

Graham, H. W., Britannia Bay, Ont.

Heimpel, L. G., 39 Alma St., Guelph.

Maxwell, R. W., c.o. J. McCormick, R.R. 5, Watford, Ont.

Michael, G. W., Sherkston, Ont.

Munro, A. D., North Lancaster, Ont.

McBeath, J. C., Woodstock, Ont.

McCulloch, O. D., R.R. 1, Port Perry, Ont.

Newton, R. G., R.R. 2, Tavistock, Ont.

O'Neill, L. E., Bradford, Ont.

Overholt, P. M., Marshville, Ont.

Scales, A. A., St. Eleanors, P.E.I.

Snyder, E. S., Box 706, Kitchener, Ont.

Timms, J. N., 118 Chatham St., Windsor.

Waterman, J. M., Fraserville, Ont.

Weston, E. W., 108 Queen St., Sarnia, Ont.

Wilson, G. R., Merrickville, Ont.

Recipients of Associate Diplomas, 1918.

Arnold, G. I., 549 Sherbourne St., Toronto.
 Brown, P. C., R.R. 2, Ilderton, Ont.
 Currier, W. L., 36 Cooper St., Ottawa, Ont.
 Fraser, G. S., Newfield, Ont.
 Frey, C., R.R. 2, Waterloo, Ont.
 Hall, J. A., Etwell, Ont.
 Hansuld, A. F., Tavistock, Ont.
 Harris, H. C. W., Alliston, Ont.
 Hood, G. B., 79 Liverpool St., Guelph.
 Hopper, W. C., Westboro, Ont.
 Jamieson, H. A., Camborne, Ont.
 King, S. W., Hickson, Ont.
 Leavens, C. R., 123 Moira St. W., Belleville, Ont.
 Lindsay, R. J., R.R. 3, Thorndale, Ont.
 Maynard, D. S., R.R. 3, Chatham, Ont.
 Mead, A. W., O.A.C., Guelph.
 Murdoch, W., Box 476, Collingwood, Ont.
 McKay, H. T., Science Hill, Ont.
 Patterson, D. J., R.R. 3, Newbury, Ont.
 Pegg, J. L., R.R. 2, Claremont, Ont.
 Porter, A. M., 158 Close Ave., Toronto.
 Quirie, R. J., Delaware, Ont.
 Scott, G. H., 201 Patterson Ave., Ottawa.
 Smallfield, H. A., Renfrew, Ont.
 Whillans, H. G., Hurdman's Bridge, Ont.
 White, S., 2078 Davenport Rd., Toronto.
 Williamson, A. J. D., 248 Frank St., Ottawa, Ont.
 Zavitz, C. H., R.R. 2, Ilderton, Ont.

Professional Dairy School Certificates Issued During 1918.

Beaton, J. L., Blackwater, Ont.
 Dunlop, R., Owen Sound, Ont.
 Gray, Andrew R., Listowel, Ont.
 Gray, Arthur, R.R. 2, Atwood, Ont.
 MacEwan, R., Woodham, Ont.
 McManus, J. A., Melville, Sask.
 McNamara, J., Stratford, Ont.
 Neal, R. G., Mt. Forest, Ont.
 Palmer, G., Rodney, Ont.
 Ross, J. H., Exeter, Ont.
 Smith, R. E., c.o. Guelph Creamery Co., Guelph.

Manual Training Certificates, 1918.

Ellis, V. A., Kimberley, Ont.
 Medcof, J. D., Hartington, Ont.
 Morrow, W. O., Seaforth, Ont.
 Sirrs, E., Campbellville, Ont.
 Weir, N. L., Waterford, Ont.

MEDALS, SCHOLARSHIPS AND PRIZES AWARDED, APRIL, 1918.

'05 SCHOLARSHIP.

(\$50 awarded by committee of staff to best "all round" man at close of third year).—J. M. Shales, Perth Road, Ont.

GOVERNOR-GENERAL'S SILVER MEDAL.

(General proficiency, first and second year work).—W. C. Hopper, Westboro, Ontario.

GEORGE CHAPMAN SCHOLARSHIP.

(\$20 in books, proficiency in English, first and second years).—W. C. Hopper, Westboro, Ont.

SECOND YEAR ESSAY.

(\$10 in books).—H. C. Harris, Alliston, Ont.

GENERAL PROFICIENCY, FIRST AND SECOND YEAR WORK.

(\$10 in books).—W. C. Hopper, Westboro, Ont.

SCHOLARSHIPS OF \$20 EACH, AWARDED FOR PROFICIENCY IN FIRST YEAR WORK.

- Group 1.—C. M. Ferguson, R.R. 3, Parkhill, Ont.
- Group 2.—F. W. Stock, Tavistock, Ont.
- Group 3.—R. Jukes, Amherstburg, Ont.
- Group 4.—J. G. McCrimmon, R.R. 2, Williamstown, Ont.

GENERAL PROFICIENCY, MAJOR SUBJECTS (FOURTH YEAR).

(\$10 in books).—W. F. Geddes, Kinburn, Ont.

CANADA INDUSTRIAL SCHOLARSHIPS.

- (Prizes for Essays, donated by Canadian Manufacturers' Association).
- 1st, \$50.—J. M. Shales, Perth Road, Ont.
 - 2nd, \$30.—T. Cooper, R.R. 1, Wallenstein, Ont.

NEW BULLETINS ISSUED DURING 1918 BY THE COLLEGE STAFF.

- No. 257—The More Important Fruit Diseases of Ontario.. Prof. J. E. Howitt.
Lawson Caesar, B.A., B.S.A.
- No. 258—The More Important Fungus and Bacterial Diseases of Vegetables in Ontario Prof. J. E. Howitt.
Prof. D. H. Jones.
- No. 259—Books on Agriculture and Household Science ... Dr. O. J. Stevenson.
- No. 260—Results of Co-Operative Experiments with Farm Crops, Sources of Seed and Production of Food Materials Dr. C. A. Zavitz.
W. J. Squirrel, B.S.A.
A. W. Mason, B.S.A.
- No. 261—Wheat and Rye Dr. C. A. Zavitz.
- No. 262—Sugar Beets Dr. C. A. Zavitz.
A. W. Mason, B.S.A.
- No. 263—Mushrooms of Ontario Dr. R. E. Stone.
- No. 264—Common Diseases of the Digestive Organs of Horses and Cattle J. Hugo Reed, V.S.
- No. 265—Bacteria—Friends and Foes Prof. D. H. Jones.
- No. 266—Cheese and Butter-Making The Staff of the Dairy School,
Guelph.
- No. 267—The Farm Water Supply and Sewage Disposal .. Prof. W. H. Day.
R. R. Graham, B.S.A.
Prof. D. H. Jones.
H. L. Fulmer, B.S.A.

CHANGES IN STAFF.

Mr. Morley Pettit resigned in 1917; his position remained vacant until the fall of this year when Dr. Burton N. Gates of Massachusetts Agricultural College was appointed Professor of Apiculture. Dr. Gates had assisted us in previous years, in conducting our short courses, so that he is not a stranger to our people.

A. Finklestein of the Bacteriological Department joined the American Navy and was succeeded by A. Davey, B.S.A., as Demonstrator.

H. M. King, Lecturer in Animal Husbandry resigned and accepted a position in B.C., his place being filled by the promotion of J. P. Sackville, B.S.A.

W. Sproule of the Dairy Department enlisted, and his place was taken by H. L. Davis.

E. S. Snyder was added to the Staff in the Poultry Department.

A. Maclaren went overseas to assist with the Khaki University.

H. G. Crawford is assisting in the Department of Entomology during the absence of Capt. G. J. Spencer.

Eric Hearle resigned the position of Resident Master and was succeeded by A. H. Musgrave, who also assumes the duties of Athletic Instructor.

Mrs. Cunningham, the Matron, resigned at the close of the year and the position was filled by the appointment of Mrs. A. J. Galbraith.

Two sad deaths occurred at this Institution just about the close of the year. R. L. Vining, a returned soldier, who had only been appointed two months in the Department of Animal Husbandry, after three days' illness, died with influenza and pneumonia.

W. H. Scott, who had charge of the Drainage Survey Work in the Physics Department, died also, after an illness of less than three weeks.

These were good men and true, and will be much missed in college halls.

SUMMER SCHOOL.

This year saw the greatest number of School Teachers ever in attendance at the college. All our dormitories were crowded and our classes had to be sub-divided again and again.

RURAL LEADERSHIP.

The course in this subject seems to have become an established institution. Larger numbers are coming each year, feeling that there is the need for Rural Leadership all over the country.

The following is a copy of the programme which was carried out in its entirety:

MONDAY, JULY 22ND, 1918.

4.00 p.m.—Registration of Students.

6.00 p.m.—Supper in the Consolidated School.

8.00 p.m.—Meeting in Massey Hall.

Address of Welcome.—G. C. Creelman, B.S.A., LL.D., President, Ontario Agricultural College, Guelph.

Organization of School.

Announcements.

TUESDAY, JULY 23RD.

Morning Time Table will be the same throughout the session.

7.30 a.m.—Breakfast.

9.00 a.m.—Rural Sociology.—Ernest R. Groves.

1. Human Instincts and the Rural Environment.
2. Psychological Aspect of the Problem of City Drift.
3. Rural Social Mind.
4. Significance of Rural Experience for National Social Welfare.
5. Problems of Poverty, Crime, Feeble-mindedness and Mental Instability in the Country.
6. The Purpose, Value, and Construction of the Rural Survey.
7. The Family of the Countryside.
8. The Social Opportunity of the Rural Church.
9. Social Obligation of the Country School.
10. Social Influence of the World War Upon Rural Life and the Problem of Reconstruction After the War.

10.00 a.m.—Programme of Community Work.—A. Maclaren.

This hour each morning will be given to a discussion of a programme of activities calculated to increase the efficiency of Home, School, Church and Community.

11.00 a.m.—Seminar on Church and Community Problems.

July 23— 1. The Church and the War.—Problems Arising Out of the War.

July 24— 2. The Church and the War.

July 25— 3. Social Hygiene.

July 26— 4. Library Improvement.—C. O. Carson, Provincial Librarian, Toronto.

July 27— 5. Problem of Co-operation Between City and Country Churches.

July 29— 6. The Country School.—Lee L. Driver, Superintendent of Education, Randolph Co., Indiana.

July 30— 7. The Country School.

July 31— 8. The Country School.

Aug. 1— 9. The Future of the Rural Community Life Movement.—A. Maclaren.

Aug. 2—10. How Shall We Reach the Local Community With Our Message?—A. Maclaren.

12.15 p.m.—Dinner.

2.00 p.m.—Tuesday July 23—Animal Husbandry.—Professor W. Toole.

Wednesday July 24—Animal Husbandry.

Thursday July 25—Animal Husbandry.

Friday July 26—Farm Business Survey.—A. Leitch.

Saturday July 27—Farm Business Survey.

Monday July 29—Apiculture.—W. A. Weir.

Tuesday July 30—Apiculture.

Wednesday July 31—Apiculture.

Thursday Aug. 1—Field Husbandry.—Professor C. A. Zavitz.

Friday Aug. 2—Field Husbandry.

3.00 p.m.—Tuesday July 23—Animal Husbandry.—Professor W. Toole.

Wednesday July 24—Animal Husbandry.

Thursday July 25—Animal Husbandry.

Friday July 26—Soil Chemistry.—Prof. R. Harcourt.

Saturday July 27—Soil Chemistry.

Monday July 29—Soil Chemistry.

Tuesday July 30—Bacteriology.—Professor D. H. Jones.

Wednesday July 31—Bacteriology.

Thursday Aug. 1—Field Husbandry.—Professor C. A. Zavitz.

Friday Aug. 2—Field Husbandry.

4.00 p.m.—Recreation—Tennis, Bowling, Swimming, Volleyball, Baseball, and Group Games. Come prepared for any and all.

6.00 p.m.—Supper.

8.00 p.m.—Story Telling, Community Choruses, Games, Lectures and Plays.

Saturday July 27—Pageant in the Gymnasium.

Monday July 29—Address by Lee L. Driver, Indiana.

Tuesday July 30—Outdoor Play by School Children on Campus.

Wednesday July 31—Address by Lee L. Driver.

Thursday Aug. 1—A Drama will be presented in the Gymnasium for the purpose of demonstrating the possibilities of this form of recreation in developing latent powers of leadership.

WORK OF THE DEPARTMENTS

CHEMISTRY.

INSECTICIDES AND FUNGICIDES.

In connection with our examination of Insecticides and Fungicides, I may say that there has been a natural tendency to bring lime arsenicals into use to take the place of the more expensive copper compounds. In particular there were two of these lime arsenicals examined this year. One known as "Acco," was advertised as arsenite of lime and the other "Acme" as arsenate of lime. Both of these were found to be misnamed, as neither one of them was composed of the compounds indicated but were merely a mixture of ingredients which would, on mixing with water, form the desired compounds. The manufacturers were advised to advertise their product more in accordance with what they were and so avoid misunderstanding.

SOIL SURVEY.

This year the work was confined to Eastern Ontario. The area covered extends fifty miles in length between the St. Lawrence and Ottawa Rivers, has an average width of twenty miles, takes in the county of Dundas with parts of Carleton and Russell and includes seventeen types of soil. Owing to the diversified character of these soils a system of semi-detail mapping was followed instead of the usual preliminary method. The most important of these types are sandy loams and clay loams for they are the best and most widely distributed; but these loams are variable and distinctly different in quality, so were mapped under five types. In addition there are considerable areas of fine sands and muck soils some of which are worth development, but many are of doubtful value. The muck soils of the area examined present many problems and constitute quite a study in themselves. During September one hundred and fifty samples of soils representing the seventeen types were taken. These will be submitted to physical and chemical analysis in order that we may give further information regarding similarities and differences among these various types.

PLOT EXPERIMENTS.

We have continued our investigations on the preliminary plot experiments and are more than ever confirmed in our opinion that lime and phosphoric acid are the two main mineral constituents required by a great part of our soils. The application of lime alone has increased yields fifty to one hundred per cent. and the use of phosphate has increased yields from one hundred to four hundred per cent., or, to be more specific, the check plot in one experiment gave 10.67 bushels of wheat whereas the best phosphate plot, which was basic slag, gave 45.8 bushels. In another experiment the check plot gave 18.75 bushels and the best plot, which was again basic slag, gave 47.9 bushels. Another experiment on heavy clay soil still further showed the great advantage of phosphate manures in that where these fertilizers were used a good crop was harvested while all the rest of the field was winter killed. We were, however, unable to get yields. These experiments were so marked as to arouse a great deal of interest and inquiries of the Agricultural Representative in whose district the experiments were carried on.

We feel that we are now in a position to make a selection of ground for permanent plots and trust to get two or three of these demonstration plots under way this coming Spring.

It is interesting and at the same time pleasing to note the rapid advancement in the use of lime and phosphate manures since we took up this problem a few years ago.

The maps of our survey up to date are practically completed but we have not been able to get the analytical work done, for it seemed impossible to get the necessary assistance. Now that chemists are being released from munition plants, we should be able to get assistance and I trust that we will get the analytical part of the work completed in the near future.

ENTOMOLOGY.

INSECTS OF THE SEASON.

Insect life during the past summer has been chiefly remarkable for its absence. Due, no doubt, to the extreme severity and long continuance of the winter, followed by repeated sudden changes of temperature during its closing weeks, a large number of insects, both injurious and innocuous, were destroyed. In this way we may account for the very limited numbers during the past season of many species that were especially abundant and destructive last year. For instance the Red-humped and Yellow-necked Caterpillars which were so abundant in many parts of Ontario during the last few years were rarely seen or complained of. This was also the case with the Checkered Tussock-worm on fruit and shade trees, the Zebra Caterpillar on cabbages, beets and turnips, the Tent Caterpillars in woods and orchards, and various others. The Wheat Midge, which threatened to become a serious menace to the farmers' crops, has almost entirely disappeared; it is difficult to say whether this immunity was due to weather conditions or to the effectual methods of control adopted by wheat-growers—probably to a combination of both natural causes and human effort.

Aphids seem to be impervious to all external influences and were more abundant and widely destructive this year than ever. Trees and shrubs, vegetables and flowering plants were attacked and often had their vitality greatly impaired by the countless hordes of these tiny pests, which suck out the life juices of whatever they attack. Numerous complaints were received respecting White-grubs and Wire-worms, which almost invariably attack crops grown upon land that has for some years been under grass. This was especially the case in "war gardens" in cities and towns, and many patriotic workers were sadly disappointed when they found their potatoes perforated and spoilt by these underground depredators.

The Carrot Rust-fly (*Psila rosae*) has been unusually prevalent in gardens about Guelph and other places in this County, and also in Toronto, St. Mary's and elsewhere, showing a wide distribution in this south-western portion of Ontario. This is one of the many injurious insects that have come to us from Europe and has been a troublesome pest for about forty years. Its attack is usually noticed in the early part of the summer when the leaves of the young carrots turn reddish, and on examination the roots will be found covered with rusty blotches, from which the insect derives its common name. The parent fly is a small two-winged creature with dark green body, yellow head and legs and red eyes. Its eggs are

laid on the stem of the carrot just below the surface of the ground, and the maggots which hatch from them make their way into the root and by tearing the tissues cause the rusty blotches to appear. This injurious work is continued even after the roots are gathered into winter storage. Celery and parsnips are liable to be attacked in a similar manner. As applications for the destruction of the maggots cannot well be applied to these underground feeders, the only method of control is to deter the fly from laying her eggs on the plants. This may be done by sprinkling the young rows of carrots with sand or plaster mixed with coal oil, half a pint to a pailful, or by spraying with kerosene emulsion. This should be done as soon as the plants are ready for thinning out and repeated weekly until about the end of June.

Somewhat similar injury to that just referred to is wrought upon the roots of cabbages, onions, beans, turnips and radishes, the maggots of several two-winged flies burrowing into the roots and producing a rotten condition which terminates in the death of the plant. Investigations and experiments have been carried on here, of which Prof. Caesar gives an account, and in many other places, and it is hoped that some inexpensive, simple and effectual means of control may be worked out. For cabbages and cauliflowers a satisfactory protection has been obtained by means of tarred felt paper disks which are put around the stems when the plant is first set out. Radishes may be protected effectually by the use of cheese-cloth frames. Beans and turnips when grown by the acre cannot easily be secured from injury. In all cases it is important to avoid growing the same kind of plant where an attack has occurred during the previous season, and also to remove and destroy all refuse that remains after the gathering of the crop.

The Parsnip Webworm, which attacks and destroys the umbels when the plant is in the second year of growth and about to produce seed, has again been somewhat prevalent to the great disappointment of the gardener who looked forward to an ample production of seed. The Potato Stalk-borer has made its unwelcome appearance in the extreme south-west counties of Ontario but happily has not been abundant; cutting out and destroying infested stems appears to be the only remedy.

Millipedes and Sow-bugs, which do not belong to the insect tribe, have been giving trouble in several greenhouses, and Slugs are a frequent cause of complaint especially from the owners of city and town gardens which are often damp and shady giving suitable conditions for these nocturnal depredators.

Housekeepers are frequently annoyed by the presence of the Mediterranean Flour-moth and grain-weevils which come to them in packages of flour or meal from groceries, to which they have been transmitted from mills and the factories of breakfast food cereals.

From the foregoing it will be seen that our insect troubles of the present season have been very few in comparison with former years and that there has been no serious outbreak of any kind. In addition to our correspondence with individuals much information has been supplied to the public by a series of short articles on injurious insects furnished to the rural newspapers through the Ontario Department of Agriculture.

One of the chief aims in our work this year was to assist in the greater production of agricultural products by better control of insect pests. With this end in view addresses of a simple, practical nature on the control of such common insects as potato beetles, cabbage worms, currant worms, grasshoppers and aphids were given wherever requested, as time permitted. In fruit districts where it had been observed that great loss by any special insect had taken place the year before, the

fruit growers were visited and shown clearly how to prevent the loss this season. In this way much good was done; for instance where thousands of baskets of sour cherries had been destroyed last year by the Cherry Fruit Flies at Burlington, scarcely a score were lost this year and the sole reason was that this year the growers followed the instructions given.

The writer and his assistants also visited orchards where spraying was being done and gave helpful suggestions and demonstrations on the best way of doing the work.

Short articles on insect control were also written for the press.

In addition to the above the following investigation work was carried on.

1. *Apple Maggot* (*Rhagoletis pomonella*). This year Mr. W. A. Ross and the writer concluded their study of this insect. When the study was begun it was believed that the only method of control was the gathering and destruction of the fallen fruit. Fortunately it has now been shown by a long series of tests in different parts of the province and under widely different conditions that spraying with arsenate of lead and water will, if applied at the proper times, completely control the insect and in a couple of years almost annihilate it.

As an example of the efficiency of this method it may be mentioned that an orchard, which in 1917 had its whole crop (worth \$1,000 if not infested) utterly ruined by the insect, was treated in 1918 by Mr. Ross and the writer and had a beautiful crop of clean fruit. There is not any doubt that had it not been for the treatment the crop would have been ruined this year again. A bulletin on this insect is now in course of preparation and will soon be ready for the press.

2. *Spray mixtures*. The last two years there has been considerable controversy in the horticultural press as to the best spray mixtures to use. Tests have accordingly been made to determine the disputed points. It was claimed that lime-sulphur with arsenate of lead caused serious dropping of the fruit, especially if applied a couple of weeks after the blossoms had fallen. To determine the facts a series of experiments with Bordeaux mixture and arsenate of lead vs. lime-sulphur and arsenate of lead were made on Spys, Russets, Snows, Wealthy and Winter St. Lawrence. The results showed, as we had expected, that under our conditions one mixture did not cause any more dropping than the other.

The merits of arsenate of lime vs. arsenate of lead as poisons to be used with lime-sulphur were tested. So far as this year's experiments go they seem to show that arsenate of lime may be substituted for arsenate of lead with the lime-sulphur mixture, but cannot be used alone because of injury to the foliage. Arsenate of lime is much cheaper than arsenate of lead. Unfortunately, there are some brands of it on the market which are unsafe.

3. *Dusting*. Owing to the high cost of sulphur and arsenate of lead dust and the fact that most of the orchard experiments were this year carried on at Brighton, far away from where the dusting machine had been stored, only about three acres of apple orchard could be dusted. This work was done at Vineland in co-operation with Mr. W. A. Ross. The results were again almost as good as those from the liquid spray. In dusting experiments by other persons in the province the results of which we had the privilege of examining, the liquid spray gave much cleaner fruit than the dust.

4. *Spray Gun*. A good test of the value of this new device for spraying was made. In the writer's opinion the spray gun is a great boon to fruit growers. It enables one man to do the work of two and to do it more easily and more thoroughly and with less material. The chief drawbacks to its use are that it

cannot be used successfully with hand outfits, and that in some cases it tends to burn the fruit.

5. *Cabbage Root Maggot* (*Chortophila brassicae*). The study of this great pest of cabbage, cauliflower, radish and turnips was begun this year and it is hoped will be continued until completed. The results of the work so far have been gratifying. Several methods of control have been tested. Of these corrosive sublimate has given the best results and is much more likely to be adopted by growers than the tarred felt paper discs, which have hitherto been considered the only good method. Much more work will be done this coming year with corrosive sublimate to see whether the method cannot be simplified. This year it was applied to the plants at the strength of one part to about 1,200 parts of water, first four days after the plants were set out; then three times at intervals of seven days. At each application sufficient fluid was poured around the roots of the plants to wet the soil thoroughly to the depth of about one and a half or two inches or as deep as the main root went.

Tobacco dust and sulphur and also tobacco dust and lime gave somewhat promising results, but much work on these and other methods is required.

6. *Blackberry Leaf-miner* (*Metallus bethunei*). In the Burlington district this leaf-miner is a great pest of blackberries and should it continue to be as abundant as it has been the last two years will almost destroy the industry. A study of the insect was made this year and various substances tested as control measures. Unfortunately, no satisfactory method has been discovered, so that up to the present the insect has baffled all our attempts to destroy it or keep it in check.

7. *Peach Yellows and Little Peach*. These two diseases as a result of careful inspection have still further decreased, less than 1,000 trees being diseased this year as against three times this number in 1916 and 1917.

8. *Nursery Inspection*. This work was continued as usual throughout the spring and summer. From an examination of the inspectors' reports it is seen that increasingly good results are being obtained each year. We have now almost reached our goal of having every nursery in the province absolutely scale free.

9. *Tussock Moth* (*Hemerocampa leucostigma*). Last autumn it was observed that great numbers of egg masses of this insect were to be found not only in some of our cities but also in many orchards. Through the kindness of the Fruit Branch the Provincial Inspector visited all the cities and main towns of the Province, examined the trees in the parks and along the streets, and wherever the eggs were found to be numerous the proper authorities were interviewed, told of the danger threatening their shade trees and informed how to combat the pest. A short circular was sent out to the fruit growers of the province advising them to remove the egg masses during the winter and spring as a cheaper and more satisfactory method of control than spraying. Fortunately, natural enemies have at last brought this insect under control and it will not be a menace next year.

BOTANY.

WEEDS.

Analysis of the correspondence during the past twelve months indicates that the following weeds have given most trouble during the past year:—Field Bindweed (*Convolvulus arvensis*), Twitch Grass (*Agropyron repens*), Wild Mustard (*Bras-*

sica arvensis), Perennial Sow Thistle (*Sonchus arvensis*), Poison Ivy (*Rhus toxicodendron*) around summer homes, Ox-eye Daisy (*Chrysanthemum leucanthemum*), Bladder Campion (*Silene latifolia*), False Flax (*Camelina microcarpa*), Tufted Vetch (*Vicia angustifolia*), and Indian Mustard (*Brassica juncea*, L.).

Indian Mustard (*Brassica juncea*, L.) appears to have become very prevalent in many parts of the Province and is causing considerable anxiety to farmers in some localities. It resembles somewhat closely Common Mustard but the whole plant is smoother, being nearly hairless, and covered with a fine bloom. The pods are a little longer and they have much longer and more widely spreading stalks (pedicels) than those of common Mustard. Indian Mustard is an annual and produces large numbers of seeds, but fortunately these do not seem to retain their vitality for any great length of time in the soil. It seems safe to say that Indian Mustard will never become a very serious pest in well cultivated fields. It should not, however, be neglected and allowed to go to seed, as it is not safe to take chances with any new weed.

PURITY TESTS OF CLOVER AND TIMOTHY SEED.

Purity tests according to the standards designated by the Seed Control Act were made of twenty-seven samples of clover and timothy seed. Out of eighteen samples of Timothy seed one graded No. 1, seven No. 2, two No. 3, and eight were disqualified.

Out of five samples of Red Clover seed one graded No. 1, two No. 2, and two No. 3.

Of two samples of Alsike seed one graded No. 1 and one was disqualified.

The only sample of Alfalfa seed submitted for test graded No. 3.

A number of samples of Sweet Clover seed were also tested for purity and contained a large percentage of noxious weed seeds. Some idea of the danger of sowing Sweet Clover seed without knowing its weed seed content may be had from a consideration of the following report on a sample of Sweet Clover seed submitted to this Department for purity test. One ounce of Sweet Clover seed was found to contain the following weed seeds:—

Canada Thistle	64	Stinking Mayweed	130
Buckhorn	12	Sheep Sorrel	421
Night Flowering Catchfly	15	Lamb's Quarters	76
Curled Dock	35	Rough Cinquefoil	268
Lady's Thumb	7	Common Plantain	59
Green Foxtail	11	Common Chickweed	11
Wormseed Mustard	26	Black Medick	2

Besides clover and grass seed a considerable number of samples of chop and various stock foods were examined as to weed seed content, some of these containing large numbers of weed seeds, but fortunately many of them were so finely ground as to destroy the viability of most of the weed seeds.

PLANT DISEASES.

The past summer the rainfall was very irregular, periods of excessive rain alternating with periods of excessive drouth. The result of this appeared to be the increase in amount and severity of the so-called "physiological diseases" of plants such as Baldwin Spot, Stippen or Bitter Pit of Apple, Blossom-end or Point Rot of Tomatoes and Mosaic and Tipburn of Potatoes.

Baldwin Spot, Stippen or Bitter Pit of Apples was reported as causing serious loss in several orchards. It is of interest to note that the worst cases of this disease occurred in orchards in which the trees had been heavily pruned. Overforcing of the trees by excessive cultivation and heavy applications of fertilizers appears to aggravate this trouble.

Blossom-end or Point Rot of Tomatoes was even more prevalent than last year. Many growers complained that their crop was almost completely ruined by it.

Potato Mosaic was very common throughout the Province, especially on the Green Mountain variety. It appeared to cause more loss than usual, due to the fact that affected plants became so badly tip burned early in August that the foliage was almost completely destroyed.

Early potatoes in many parts of the Province suffered severely from Tip Burn. So bad did this trouble become in some localities that many growers thought their plants had been destroyed by Blight. The prevalence of Tip Burn was no doubt largely due to the excessively hot, dry weather of late July and August.

Among the more important fungus diseases of the season on which advice was given the following may be mentioned:—Loose Smut of Barley (*Ustilago nuda*), Crown or Leaf Rust of Oats (*Puccinia coronata*), Black Scurf or Rhizoctonia of the Potato (*Corticium vagum*, var. *solani*), Orange Rust of Raspberries (*Gymnoconia Peckiana*), Apple Scab (*Venturia pomi*), Potato Wilt (*Verticillium albo-album*), and Powdery Mildew of Strawberry (*Sphaerotheca humuli*).

NEW DISEASES.

Cucumber Mosaic or White Pickle was observed in Ontario for the first time this year. In the United States this disease is recorded as being widespread and severe in the Middle West and is reported as occurring to more or less limited extent in New York, Louisiana, Pennsylvania and other States.

Symptoms. Plants affected when young are dwarfed, the runners being very short, the leaves reduced in size and the blossoms and fruits are few. When older plants are attacked the symptoms are confined to the new growth. Affected leaves are small, frequently curled and wrinkled and usually show alternate areas of light and dark green which give them a Mosaic appearance. Diseased fruits are dwarfed often distorted in shape and of varying colour, frequently mottled with areas of darker green on light green. Sometimes they are almost white. Cucumber Mosaic spreads from plant to plant. Plant lice have been shown to act as carriers of the virus and it is probable that other insects may transmit the disease. There is also evidence to show that the disease is spread by pickers in harvesting the cucumbers.

The methods recommended for the control of this disease are protection of the plants from insect attacks and repeated inspection of the fields, pulling up and destroying all plants showing signs of the disease or which have come in contact with diseased plants.

DAMPING-OFF OF ONION SEEDLINGS.

This spring specimens of diseased onion seedlings were received by this Department. In the accompanying letter it was stated that the disease was bad in a greenhouse in Chatham and the grower feared that he would lose all the plants he was raising for early gardens. Dr. Stone examined the affected plants and reports as follows:—

Symptoms. The leaves of affected plants first show yellow areas, then in a couple of days the upper parts of the leaves become soft and rotten and are covered

with a gray fungus growth, then the whole plant collapses or damps off. Usually the disease is first noticed when the leaves begin to rot.

A fungus known as *Botrytis* was isolated from the diseased plants which was able to infect healthy plants and produce the typical disease. This *Botrytis* was isolated. Diseased plants placed in a cool dry place recovered. The grower was directed to place his onion plants in a cool dry place and not to overwater them. These directions were followed out and later the grower reported that the results were entirely satisfactory.

BARLEY BLAST.

For the past two seasons a serious disease has been noted in barley in the College fields and Experimental Plots. Dr. Stone, who has been working with this disease, reports as follows:—

Affected plants do not mature properly but ripen prematurely. The stems become darkened and often the heads do not push out of the sheath and bear no grain. In some of the leafy varieties as Two-rowed King the loss may be as high as 20 per cent. It was first thought that this might be the result of the stripe disease of barley, but later work shows that this is not the case.

If the diseased stalks are split the lumen is found to obtain a gray fungus growth which upon microscopic examination is seen to be a *Fusarium*. Cultures made from the interior of the stems proved to be pure cultures of *Fusarium*. So far no inoculations have been made, so that it cannot be positively stated that the *Fusarium* is the cause of the disease. Experiments are under way to determine the exact cause of the disease and the possibility of preventing loss from it by treating the seed with fungicides.

BEAN MOSAIC.

This disease was observed in Ontario for the first time this year. It was common in many fields throughout the bean growing sections of the Province. It is known to be a serious disease. There is very little exact information concerning it. It is hoped that time may be found next summer to carry on experiments with this disease which may lead to information concerning its distribution and methods for its control.

POTATO DISEASE INVESTIGATION IN CO-OPERATION WITH AGRICULTURAL REPRESENTATIVES.

This work was undertaken to determine the best source from which to obtain seed potatoes free from the so-called "Physiological diseases" such as Leaf Roll and Mosaic which would give large yields. With this object in view Green Mountain and Irish Cobbler seed potatoes were obtained from Southern Ontario, Northern Ontario and New Brunswick. The seed from these sources was planted side by side in plots in nearly every county in Southern Ontario. Two sets of such plots were planted in each county, one set on heavy soil and the other on light. The Agricultural Representatives co-operating with the farmers in their counties looked after the planting, spraying and cultivation of these plots. During the summer each plot was inspected for disease by Mr. Aiton of this Department. This fall the Agricultural Representatives ascertained the yields obtained from the seed of each of the three sources. The following table summarizes the results

of these experiments and shows the average percentage of Leaf Roll, Mosaic, Foreign, and Misses found in the plants grown from the seed of the two varieties from the three different sources. It also shows the average yields in bushels per acre from each variety from the three sources:—

SUMMARY OF ALL THE COUNTIES.

No. of plots inspected	380	
“ plants examined	74,200	
“ farms on which plots were situated	64	
Average percentage of Leaf Roll in Irish Cobblers..... (S. Ont.)	44.6	Yield 137.6
“ “ “ “ “ “ (N.B.)	5.2	“ 140.4
“ “ “ “ “ “ (N. Ont.)	1.1	“ 153.7
Average percentage of Mosaic in Irish Cobblers (S. Ont.)	2.4	“ 137.6
“ “ “ “ “ “ (N.B.)	2.9	“ 140.4
“ “ “ “ “ “ (N. Ont.)	1.2	“ 153.7
Average percentage of Leaf Roll in Green Mountain..... (S. Ont.)	8.4	“ 176.9
“ “ “ “ “ “ (N.B.)	3.3	“ 140.9
“ “ “ “ “ “ (N. Ont.)	1.2	“ 185.3
Average percentage of Mosaic in Green Mountain (S. Ont.)	27.9	“ 176.9
“ “ “ “ “ “ (N.B.)	61.1	“ 140.9
“ “ “ “ “ “ (N. Ont.)	3.1	“ 185.3
Average percentage of Foreign in Irish Cobblers (S. Ont.)	2.9	
“ “ “ “ “ “ (N.B.)	2.5	
“ “ “ “ “ “ (N. Ont.)	31.9	
Average percentage of Foreign in Green Mountain (S. Ont.)	.3	
“ “ “ “ “ “ (N.B.)	.7	
“ “ “ “ “ “ (N. Ont.)	.8	
Average percentage of Misses in Irish Cobbler (S. Ont.)	3.1	
“ “ “ “ “ “ (N.B.)	1.9	
“ “ “ “ “ “ (N. Ont.)	3.7	
Average percentage of Misses in Green Mountain (S. Ont.)	2.3	
“ “ “ “ “ “ (N.B.)	2.7	
“ “ “ “ “ “ (N. Ont.)	5.7	

It is seen from the above table that the seed potatoes obtained from Northern Ontario were much freer from Leaf Roll and Mosaic and produced larger yields per acre than the seed from Southern Ontario and New Brunswick.

SUSCEPTIBILITY OF VARIETIES OF POTATOES TO LEAF ROLL AND MOSAIC.

Inspection for Leaf Roll and Mosaic of the numerous varieties of potatoes grown by Prof. Zavitz on the Experimental Plots afforded an opportunity of obtaining data regarding the degree of susceptibility of the different varieties to these diseases. Only those varieties which had been grown for at least five years on the Experimental Plots were considered in obtaining this data.

SUSCEPTIBILITY TO LEAF ROLL.

Very High.

Pearl of Savoy	100%	Six Weeks	94.4
White Elephant	98.4	Rural New Yorker No. 2	93.4
Early Rose	98.4	Early Pinkeye	90.9
Rose, New Invincible	97.9	Early Fortune	89.3
American Wonder	97.4	Davies Warrior	87.1
Rose of the North	97.3	The Hustler	85.4
Early Ohio	97.0	Stray Beauty	79.0
Beauty of Hebron	96.4	Sir Walter Raleigh	72.7
Late Faction	95.4	Empire State	72.1
Burpee's Extra Early	95.0	Irish Cup	66.1

High.

Isle of Jersey	58.0%	Irish Cobbler	42.5
Pan American	55.0	Carman No. 1	40.4

Medium.

Delaware	29.0%
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Low.

Gold Nugget	3.5%
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SUSCEPTIBILITY TO MOSAIC.

High.

Gold Nugget	59.0%	Rose of the North	24.2
Green Mountain	30.1	Pearl of Savoy	21.7
White Elephant	26.7	American Wonder	21.7
Burpee's Extra Early	25.5		

Medium.

Beauty of Hebron	19.1%	Early Pinkeye	13.6
Rose, New Invincible	17.1		

Low.

Early Rose	8.0%	Irish Cup	2.5
Irish Cobbler	5.6	Davies Warrior	1.4
Early Fortune	5.5	Sir Walter Raleigh	0.5
Empire State	5.1	Late Faction	0.5
The Hustler	5.0	Carman No. 1	0.1
Stray Beauty	4.5	Isle of Jersey	0.0
Delaware	3.4	Pan American	0.0
Rural New Yorker No. 3	3.0	Six Weeks	0.0
Early Ohio	2.6	Empire State No. 5	0.0

EXPERIMENTS TO CONTROL LATE BLIGHT OF CELERY.

Spraying experiments to control Late Blight of Celery have been conducted in co-operation with the Department of Horticulture for six years. During this time lime-sulphur, sulfocide, Bordeaux mixture and formalin, 1 pint to 20 gallons of water, have been tested as to their efficiency in the control of this disease. Of these four sprays Bordeaux mixture is the only one which our results will warrant us in recommending for the control of Late Blight of Celery.

EXPERIMENTS TO TEST THE SPRAY METHOD OF APPLYING CONCENTRATED FORMALDEHYDE SOLUTION FOR THE CONTROL OF OAT SMUT.

This is a new rapid and convenient method of preventing Oat Smut which has been recently tried and recommended by several Experiment Stations of the United States . It has many advantages over the old methods, chief among which are greater simplicity, rapidity and ease of application, which should lead to its being widely used if it proves as effective as the older methods.

Laboratory experiments conducted by this Department last winter showed that the vitality of oats treated by this method was not injured. This spring field experiments were made with this method for the control of Oat Smut and the results were highly satisfactory. Some sixty-one bushels of oats were treated. These were sown in three different fields. In each case some untreated oats were sown for check. No Smut developed in the oats from the treated seed, while in

the oats from untreated seed the amount of Smut varied from 3 to 13 per cent. Directions for this method are briefly outlined as follows:—

As the seed is being shovelled from one pile to another each shovelful is sprayed with a solution consisting of one part of 40 per cent. formaldehyde and one part of water. This solution is used at the rate of one quart to fifty bushels of seed. A small quart sprayer is a convenient one to use for the purpose. After the oats are all treated in this way they are piled in a heap and covered with blankets, canvas, or sacks to confine the vapour. At the end of five hours the seed may be uncovered and planted. As formaldehyde vapour acts as an irritant to the mucous membrane of the eyes, nose and throat, the sprayer should be held down close to the pile and a circulation of air should be provided.

INVESTIGATION OF THE CAUSE AND MEANS OF CONTROL OF A PECULIAR DISEASE OF WINTER TOMATOES.

During the last four years a peculiar disease of winter tomatoes has caused serious loss in commercial greenhouses in many parts of the Province. This disease is generally known as “winter blight” of tomatoes. The symptoms have been fully described in previous reports. This Department has for the past four years been making observations and conducting experiments to ascertain the cause and means of control of this trouble. The conclusions of our four years’ work have been summarized by Dr. Stone as follows:—

The trouble is associated with a rapid forcing of the crop, the plants before showing definite blight lesions being excessively vigorous with “sappy” stems and very large, often curled and distorted leaves. No organism has been isolated from the lesions that can produce the blight upon reinoculation. Direct inoculations have been tried in numerous ways but without success. The seed from diseased plants does not appear to be a source of dissemination. Fumigation with potassium cyanide even under unfavourable conditions does not cause the trouble. Chilling of the plants will not produce the symptoms.

If the beds in which blight has previously appeared are given as additional fertilizer three ounces of acid phosphate and $\frac{1}{4}$ ounce of potassium sulphate per plant, a healthy crop will be produced, while beds not so treated develop from 50 per cent to 75 per cent blight. The conclusion has been reached that the blight is due to an unbalanced soil condition, especially to an excess of nitrogen. The best results in commercial greenhouses have been obtained by the addition of from 6 to 12 ounces of acid phosphate and $\frac{1}{4}$ to $\frac{1}{2}$ ounce of potassium sulphate per square yard of bed, the exact amount depending upon the richness of the soil in nitrogen, and by withholding water to some extent and keeping the temperature uniform so that the plants do not make a “sappy” growth.

INVESTIGATIONS TO DETERMINE TO WHAT EXTENT THE FUNGUS WHICH CAUSES LATE BLIGHT OF CELERY IS CARRIED OVER ON THE SEED.

This experiment has now been conducted for four years. During this time 17,400 seeds showing fruiting bodies of the fungus which causes Late Blight of Celery (*Septoria petroselini*, var. *apii*) have been sown in soil free from the blight organism. The seedlings have been carefully examined for any indication of the Late Blight. Not a single diseased seedling has been produced from the 17,400 infected seeds. It is safe to conclude, therefore, that the fungus which causes Late Blight of Celery is not carried over to any extent by means of infected seed.

DAIRY NOTES.

Butter held at cellar temperature two weeks lost per pound one-eighth of an ounce more than did similar lots held in cold-storage. Highly salted and under-worked butter, lost over one-half an ounce per pound in two weeks when held at cellar temperature. The practical lesson for farm buttermakers is that butter held for two weeks at the temperature of farm cellars must have over half-an-ounce per print excess weight at the time of making in order to weigh sixteen ounces to the print when sold. Under-weight butter is likely to be confiscated on the market.

Cottage cheese packed in fourteen pounds paraffine and parchment-lined boxes, kept in good condition for six weeks in cold storage at a temperature of 40 degrees F. This indicates a satisfactory method of holding these cheese.

There is a very decided saving in the shrinkage of cheese as the result of paraffining, whether cheese be held in an ordinary curing-room, or in cold-storage.

The results of several years work show that speed of the bowl of the separator is a very important factor in determining the percentage of fat in the cream obtained. It is therefore important to maintain, so far as possible, uniform speed throughout the run each day, and also day after day, in order not to have the percentage of fat in the cream varying as delivered to the creamery, or other purchaser of cream.

The formula for making eight imperial gallons of ice cream is:—

44.5 lbs. cream testing 13 per cent. fat.

1.5 lbs. skimmilk powder.

6 lbs. cane sugar (1.5 lbs. sugar may be replaced with 2 lbs. cane syrup).

4 oz. vanilla extract.

8 oz. gelatin dissolved in 6 lbs. skimmilk.

The cost per gallon of ice cream for the above ingredients in June, 1918, was from 53 to 67 cents.

ANIMAL HUSBANDRY NOTES.

BEEF CATTLE.

During the year several additions have been made to the beef cattle herd chiefly in pure-bred Herefords and Aberdeen-Angus. Besides the fairly strong herd of choice Scotch-bred Shorthorns the foundation is now laid for a small breeding herd of the two previously mentioned breeds, there being on hand five good individual Angus females and a herd sire, and seven Hereford females with a herd sire. It is intended that the three leading beef breeds shall be carried for breeding and class room purposes.

SHEEP.

During the summer the flock was badly infested with tape worm and gains in the lambs were not being made as rapidly as they should have been. The entire lamb flock was treated with oil of male shield fern one dram to two ounces of castor oil with excellent results and the lambs immediately after treatment showed twice as many pounds gain per month as they had done the month previous to

treatment. This dose was just half that required for a mature sheep. Investigation proved that the lambs were nearly all infected while the mature ewes were comparatively free from the trouble.

LAMB EXPERIMENT.

In the fall of 1918 eight ewe lambs, eight ram lambs, and eight wether lambs were put in as a lamb-fattening experiment to determine whether or not it pays to fatten lambs. These were carried through and marketed by two fourth-year students and finally sold on Toronto market at $14\frac{1}{4}$ cents per pound for the rams, $15\frac{1}{4}$ cents for the wethers and $15\frac{1}{2}$ cents for the ewes. When the final figures are available a very good case will be made out against the ram lamb as a feeding proposition as compared with ewes and wethers.

THE LAMB CROP.

The results of 1918 lamb crop showed that 14 Leicester ewes gave an increase of 135.7 per cent.; 18 Shropshires gave an increase of 133.3 per cent.; 5 Oxfords gave an increase of 180 per cent.; 4 Southdowns gave an increase of 100 per cent.; and 3 Cotswolds gave an increase of 103 per cent.—a total for the 44 breeding ewes of the 5 different breeds of 134 per cent. This percentage is figured on the lambs which were raised and not on the number dropped. The weights of the lambs were made at birth and every month thereafter up to the sixth month, and gains recorded. It was found that the best gains were made on rape pasture in the fall.

WOOL CLIP.

The wool was sold through the Ontario Sheep Breeders' Co-operative Association and the weights averaged as follows: 21 aged Shropshires, 7.6 pounds; 14 aged Leicesters, 7.57 pounds; 6 yearling Leicesters, 7.83 pounds; 5 aged Oxfords, 9.0 pounds; 4 aged Southdowns, 4.48 pounds; 3 aged Cotswolds, 9.08 pounds; 1 yearling Cotswold, 12 pounds—an average for the entire flock of 7.7 pounds.

Breeding work is being carried on with Shropshires and Leicesters, with four or five choice individuals of the other common breeds maintained for class room purposes. More cannot be carried at the present time.

SWINE.

To the already strong herd of Yorkshire breeding sows several young sows selected from litters of the fall of 1917 and the spring of 1918 were added, and a few prize-winning Berkshire breeding sows were purchased to strengthen the herd of this breed. Besides these two breeds there were purchased, for class-room purposes only, a small pen of each of the following breeds: Duroc-Jerseys, Poland-Chinas, Chester Whites, and Tamworths.

BACKYARD PIG EXPERIMENT.

On June 12th, 1918 an experiment in backyard pig feeding was started with two lots of two pigs each in back yards in Guelph. The pigs were just weaned off the sows and were valued at \$10 each, market value at that time. They were placed in two small pens, two pigs to a pen, and fed on a mixture of middlings and mixed chop with a little tankage. They consumed 1,300 lbs. of middlings, 629-lbs. chop,

and 60 lbs. tankage up to October 10th when they were sold to a local drover at \$18.00 per hundred. The four then weighed 675 lbs. They were not finished as well as they should have been but the weather was turning cold and the price seemed to be dropping, so the owners sold.

The total cost was:—

4 pigs at \$10.00	\$40 00
1,300 lbs. middlings at 2c.	26 00
629 lbs. chop at 2c.	12 58
60 lbs. tankage at 4c.	2 40
	<hr/>
	\$80 98

The selling price of the pigs was:—

675 lbs. at 18c.	\$121 50
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This leaves \$121.50—\$80.98=\$40.52 to pay for labor, housing and green feed from the garden. These backyard pigs paid fairly well.

THE SELF-FEEDER FOR HOGS.

During 1918 two experiments were carried out each with two pens of pigs on the self-feeder and two pens trough fed. Those on the self-feeder required a trifle more feed than those which were hand fed, due to the extra waste, and the gains over a period of three months were practically the same, there being only about one pound per pig difference in these gains.

WESTERN SCREENINGS.

In the winter of 1917-18 an experiment was carried out with feeding pigs to determine the value of Western screenings as compared with mixed chop and middlings. Without going into figures here it may be said that the screenings gave very satisfactory results and a little better gains than the other feed.

THE DAIRY HERD.

Owing to the fact that it is impossible to carry too many different breeds in the dairy stable the dual-purpose Shorthorns were transferred early in the summer of 1918 to the Monteith Demonstration Farm, Monteith, New Ontario, where they will strengthen the work which is being carried on with this breed.

It was decided also not to carry the Bang system of treating tuberculosis any farther at the present time and the herd of reactors was slaughtered. This made it necessary to purchase more females for the herds of Holsteins, Ayrshires and Jerseys with which breeding work is to be continued. Seven choice Holstein females have been added to the herd and four Ayrshire heifers. A few more Jerseys will be secured in the near future.

FARM HORSES.

A start was made this spring in breeding a number of pure-bred Clydesdale mares maintained on the farm to do the farm work and for class-room purposes. Seven mares were bred to the best stallions available.

ANNUAL SALE OF BREEDING STOCK.

The annual sale of pure-bred live stock was held October 31st and was entirely successful. Prices were fairly high but buyers got good value in the offering. The top price for the entire sale was \$950.00 paid by Carpenter & Ross, Mansfield, Ohio, for the year-old white heifer, Augusta O.A.C. 5th. Shorthorns sold well and sheep and swine met a ready demand. The following is a detailed statement of the sale returns:

4 Shorthorn bull calves brought	\$905 00	average \$226 22
4 Shorthorn females brought	2,850 00	average 712 50
2 Aberdeen-Angus bulls brought	315 00	average 157 50
5 Holstein bull calves brought	457 50	average 91 50
2 Ayrshire bull calves brought	120 00	average 60 00
3 Jersey bull calves brought	152 50	average 50 83
1 grade Shorthorn cow brought	175 50	
2 fat Cattle (steer and heifer) brought	412 80	average 206 40
14 Shropshire sheep (ewes and rams) brought	537 50	average 38 39
1 Southdown ram lamb brought	22 50	
11 Oxford sheep (ewes and rams) brought	482 00	average 43 81
12 Leicester sheep (ewes and rams) brought	447 50	average 37 29
45 Yorkshires (many young pigs) brought	2,099 50	average 46 65
22 Berkshires (mostly very young) brought	537 50	average 24 43

The total for the sale was \$9,511.80.

This aggregate is very good considering that no dual purpose Shorthorns were offered this year and that no female stock from the dairy herd was sold. Most of the pigs were young and altogether they sold well, while sheep made a good average.

FARM SURVEYS.

Following the investigation into the methods of conducting farm business surveys the work was carried on in Caledon township, Peel County, and the complete report is as follows:—

During October and November, 1917, itemized records of one year's business transactions on 113 farms of Caledon Township were taken. The "Farm year" in this case was taken to be from October 1st, 1916 to October 1st, 1917. The purpose of this survey was to permit of a study of those factors which have the greatest influence toward raising or lowering the net income of the average farm. Every farmer is conducting his business with the idea of obtaining the greatest possible return from the labor and capital expended. But it is an equally well known fact that while some men come fairly close to this objective, others fall far below. The basis of this study was the comparison of the methods of the former group of men, with those of the latter.

Owing to the fact that quite a large number of farmers were not able to get their threshing done until very late in the season, certain records could not be completed. For this, and some other minor reasons, only 82 of the original 113 records were found to be available for study.

LABOR INCOME.

By the term "Labor Income" is meant the net receipts, after paying all expenses of the farm, including 5 per cent. interest on the capital invested, and paying for all labor save that of the man who actually operated the farm. Labor

performed by unpaid members of the family is charged at what it would have cost if hired. The decrease in value of buildings and machinery due to one year's use is also calculated and charged. No account is taken of what the farm supplies directly to the table.

ADJUSTED TILLABLE AREA.

In order to compare farms on which the percentage of waste land, or untillable pasture land was comparatively high, with those which were practically all tillable, a basis of "adjusted tillable area" had to be adopted. It is considered that about four acres of rough pasture or six acres of pastured woods are equal to one acre of tillable land. Hence, to the "tillable area" of each farm was added one-quarter of the number of acres of non-tillable pasture, and one-sixth of the number of acres of woods pastured. The total was called the "adjusted tillable area" and the grouping according to size was made on this basis.

INFLUENCE OF SIZE OF FARM ON LABOR INCOME.

TABLE 1

Acres	Under 85	86-100	101-150	151-241
No. farms.....	25	16	22	19
Size—Average.....	72.3	93.2	129.6	175.3
Your farm.....	.....	.....	.....	.....
Capital—Average.....	6,944	8,942	12,635	16,111
Your farm.....	.....	.....	.....	.....
Capital in buildings—Average.....	2,192	2,678	3,693	4,472
Your farm.....	.....	.....	.....	.....
Capital in machinery—Average.....	422	510	598	789
Your farm.....	.....	.....	.....	.....
Productive capital—Average.....	4,330	5,754	8,344	10,850
Your farm.....	.....	.....	.....	.....
Percentage of capital in buildings and machinery—Average.....	37.7	35.7	34.0	32.7
Your farm.....	.....	.....	.....	.....
Crop acres per horse—Average.....	18.8	21.1	20.6	22.5
Your farm.....	.....	.....	.....	.....
Crop acres per man—Average.....	46.9	58.0	60.5	63.4
Your farm.....	.....	.....	.....	.....
Labor income—Average.....	\$507	\$891	\$1,091	\$1,581
Your farm.....	.....	.....	.....	.....

—	Average of all farms	Your farm
Receipts per Live Stock Unit.....	\$74 70	.....
Feed per Live Stock Unit.....	56 80	.....
Profit per Live Stock Unit (over cost of feed).....	17 90	.....
Crop yields.....	100%	.....

NOTE:—A Live Stock Unit is one mature cow or horse, or proportionate number of smaller animals, maintained for one year—two head young cattle, seven sheep, 100 hens, hogs according to weight. (Sometimes abbreviated to L.S.U.)

Table 1 shows one very striking result—that the amount of labor income increases directly with the acreage of the farm, or, otherwise, increases directly with the size of the farm business. All the farms were engaged in practically the same type of farming. As will be seen, the average labor income for the group of farms under 85 acres in extent was \$507, whereas that for the group over 150 acres in extent was \$1,581, those of the other two groups ranging proportionately between.

The low average of the “small farms” group indicates that on these farms the farm business is too small to pay the necessary overhead expenses, common to all sizes of farms, and leave enough profit to pay the operator more than laborer’s wages. In fact, in a year when prices of farm products are normal, these men very probably work for nothing.

Looking more closely into the matter, we see the explanation for this fact. In the first place, although the capital invested in buildings and machinery varies more or less directly with the total farm capital, it is somewhat higher on the small farms—37.7 per cent. as compared with 32.7 per cent. And this higher percentage, deducted from an already small total capital, leaves a much too small amount of productive capital to permit of even a moderately high labor income. In the second place, the man and horse labor is more costly on the small farm than on the large. On the small farms one man performed the labor on only 46.9 acres, and one horse on 18.8 acres, whereas on the large farms one man performed the labor on 63.4 acres and one horse on 22.5 acres. Nor were the small farms farmed more intensively. In fact, the average crop yields per acre on the small farms were 11.8 per cent. lower than on the large farms. The highest crop yield averages were on the two intermediate groups, these being about equal, and 20 per cent. higher than on the small farms.

INFLUENCE OF GOOD CROPS AND GOOD STOCK.

TABLE 2.

Crops	Live Stock Below Average.		Live Stock Above Average.	
	No. Farms		No. Farms	
Below Average.	Average Size	108	Average Size	112
	Labor Income	\$508.00	Labor Income	\$1,047.00
	Labor Inc. per acre	4.70	Labor Inc. per acre	9.35
Above Average.	No. Farms	14	No. Farms	21
	Average size	127	Average Size	120
	Labor Income	\$977.00	Labor Income	\$1,530.00
	Labor Inc. per acre	7.70	Labor Inc. per acre	12.75

Table 2 shows the relative influences of crop and live stock production on the labor income. Owing to the difference in average size of farm in the various groups, the “Labor Income per acre” has also been calculated. It will be seen on comparing both groups with live stock below the average, that an increase in efficiency of crop production means an increase in labor income of \$469—or an increase of \$3.00 per acre. Likewise in the groups with live stock above the average, an increase in crop production increases the labor income by \$483—or \$3.40 per acre. But on comparing the two groups with crops below the average, it will be seen that an increase in returns from live stock adds \$539 to the labor income—at the rate of \$4.65 per acre. And comparing the two groups with crops above the average, we find that an increase in stock returns means an addition of \$553 to the labor income—or \$5.05 per acre. Otherwise, if we make a comparison of the group with

both crops and stock below the average with the group underneath and the group to the right, we see that with stock the same and crops increased, the raise in labor income is \$469, or \$3.00 per acre, whereas with crops the same and stock returns increased, the raise in labor income is \$539, or \$4.65 per acre. Thus, the conclusion is necessarily reached that in the area surveyed, the greatest opportunity for raising the labor income lies in increasing the quality of the live stock.

To WHAT EXTENT DOES GOOD FEEDING PAY?

TABLE 3

Feed fed, per L.S.U.....	Under \$43	\$43-50	\$50-60	\$60-70	Over \$70
Average cost per L.S.U.....	\$36 46	\$45 90	\$54 21	\$63 74	\$82 62
Receipts per L.S.U	67 91	70 56	78 74	77 09	78 41
No. farms.....	16	14	19	16	17
Average size.....	108	129	129	116	96
Labor income	991	1,241	1,104	907	722
Labor income per acre	9.2	9.6	8.6	7.8	7.5

This table adds further proof to the well-known law that after a certain degree of production has been reached, a higher degree cannot be attained without lowering the net profits. The cost of the final returns is more than the sale price. The amount of feed which may be fed profitably will, of course, depend upon the quality of the stock. With the average of Caledon Township stock, approximately fifty dollars' worth of feed may be fed profitably. It will be seen that the receipts per live stock unit in the last three groups are practically the same. The increase in feed did not increase the returns. Hence, the profit was lowered, with the direct effect of lowering the labor income. In the group which was fed most heavily, each live stock unit yielded a loss of \$4.21 on feed alone. The labor expended on this stock was also lost. As the average size of farm varies somewhat in the different groups here also, the "Labor Income per Acre" has been calculated. It is highest in the second group, where the average feed consumed amounted to \$45.90 per live stock unit.

Briefly then, the findings of the survey thus far may be summed up as:—

1. The size of the business on the small farm engaged in general mixed farming, is too small to pay all expenses and leave more than a very small labor income for the operator.
2. High profits from live stock have a greater influence on the labor income than have high crop yields.
3. The quality of the live stock determines the amount of feed which may be fed profitably. Heavy feeding to stock of low quality means a loss rather than a gain. In order that the crops grown may be fed upon the farm to keep up the soil fertility, and at the same time yield a profit, the quality of the stock on a great many farms must be increased.

This work has been carried forward through 1918. Seven hundred and seventy-seven farm records were made in Oxford and Dundas counties. In Oxford, four hundred and thirty-seven records were completed from the townships of Blandford, East Oxford, North Norwich, Dereham, West Oxford, North Oxford, East Nissouri, West Zorra, and East Zorra. In Dundas, Winchester township was covered thoroughly, and Williamsburg, Matilda, and Mountain townships partially. In all, three hundred and forty records were obtained from Dundas county.

HORTICULTURE.

VEGETABLE SEED GROWING.

We have produced this year commercial quantities of seed of the following vegetables: Beet, carrot, onion, parsnip and spinach. In our commercial truck garden this year, all or nearly all of our beets, onions, celery, cabbage, spinach and lettuce were grown from our own seed. Parsnip and carrot seed of our own growing showed up well in comparison with commercial stocks and will be used for next season's main crop. At present there seems to be no doubt that beet, parsnip, onion and spinach seed can be produced commercially in Ontario, as satisfactory yields of viable seed have been obtained. Crops of which seed can be grown in a limited way but which would probably not be commercially profitable are lettuce, cabbage, cauliflower, celery and carrot. The summer rains of this climate frequently interfere seriously with seed setting and if these crops are to be produced in Canada the irrigated dry belts of British Columbia seem to offer the best opportunities.

VEGETABLE BREEDING.

If home grown vegetable seed is to give satisfaction, attention must be given not only to yield and germinating power but to the quality or grade of the stock itself. We have been working for four years to purify strains of some of our most important vegetable varieties and to breed them up to a high standard of type and quality. We find that the problem is much more difficult than we had supposed and after four years of painstaking work, we find ourselves possessed of but limited quantities of our best stocks. Most of our vegetable varieties are very much mixed and show many worthless types, making improvement of this kind imperative if growers are to get adequate returns for their labor. We propose to place these small quantities of high grade stock seeds with commercial seed growers for increase and have received already many more orders for seed than we can supply. We are carrying on this careful breeding work with the following vegetables:

<i>Celery</i>	Paris Golden Self-Blanching.
<i>Beet</i>	Detroit Dark Red.
<i>Carrot</i>	Chantenay.
<i>Cabbage</i>	Jersey Wakefield.
"	Tender Eight-Weeks.
"	Glory of Enklinizen.
<i>Onion</i>	Southport Yellow Globe.
"	Danvers Yellow Globe.
<i>Parsnip</i>	Hollow Crown.
<i>Spinach</i>	Long Standing.
<i>Lettuce</i>	Grand Rapids.
"	Wayahead.
<i>Tomatoes</i>	Various crosses for early crop and main crop.

WINTER INJURY STUDIES.

The winter of 1917-18 was the most severe on record with respect to damage done to fruit trees. It is estimated that from 20 to 25 per cent. of the apple trees between Toronto and Belleville were destroyed and all sections of the Province suffered similarly. Many more trees will die in 1919. Fruit trees and plants of all kinds suffered injury as did also forest and shade trees. Varieties which have always been considered iron-clad were seriously injured and sorts thought to be safe enough for commercial purposes were so badly damaged as to be rendered

undesirable. A winter such as this may never occur again but no one would care, at present, to recommend the Baldwin apple for general planting in Ontario. Messrs. Tisdale and Boyd of Simcoe, Norfolk County included 2,800 Baldwins in an orchard of 7,000 trees set some eight years ago. A large proportion of the Baldwins have been wiped out and it is feared that the entire number will have to be replaced by some hardier sort.

Northern Spy, which is counted satisfactory in hardiness and which has never shown serious winter injury at Guelph, was very badly damaged last year by the killing of large branches in the top. Mr. W. F. W. Fisher of Burlington lost an entire orchard of Duchess pears consisting of some 600 trees of bearing age. Mr. J. O. Duke of Essex County lost 20 acres of mature peach trees and many additional instances could be given.

Mr. Neilson spent several weeks studying in the field, the effects of this disastrous winter. The importance of these studies it is impossible to over-estimate. There is more information available throughout Ontario at present than ever before on the behavior of varieties, the influence of soil types; the relation of tillage methods etc. to winter hardiness.

Following is a brief summary of observations, the importance of which will be evident:

The following forms of injury are recognized:—

- (1) Root Killing;
- (2) Killing of Bark at the Collar or Crown;
- (3) Bark Splitting (without killing);
- (4) Bark Killing on Trunk and Branches;
- (5) Sunscald;
- (6) Bark Killing in Crotches of Main Limbs;
- (7) Killing Back of Branches;
- (8) Killing of Fruit Buds and Spurs;
- (9) Black Heart.

CAUSES OF INJURY.

(1) *Root Killing.* Caused principally by the use of tender roots for budding and grafting. Worse on wet or heavy undrained land. Caused also by lack of snow or other ground cover. Worse on sites exposed to wind. All varieties affected, even the hardiest.

(2) *Collar or Crown Killing.* Caused by lack of drainage and by forcing trees for strong growth as with heavy applications of stable manure or long continued cultivation. Some varieties are particularly susceptible, notably King and Ontario.

(3) *Bark Splitting.* Caused by a sudden drop in temperature. Much worse in strong growing trees and on sunny exposures.

(4) *Bark Killing.* Caused by drying out of the bark in long continued cold spells. Increased by exposure to wind.

(5) *Sunscald.* Occurs on areas exposed to strong sun of late winter and early spring. Caused by repeated freezing and thawing.

(6) *Crotch Injury.* A common and serious form of damage which leads to decay in the heart of the tree. The cause is not obvious. The injury is seriously induced by over growth.

(7) *Killing Back of Branches.* Occurs on tender varieties and is seriously induced by over stimulation of wood growth. Caused by low temperatures, especially if long continued.

(8) *Killing of Fruit Buds and Fruit Spurs.* Caused by a sudden fall in temperature, also by drying out in long continued cold snaps. Increased by exposure to wind.

(9) *Black Heart.* This is the killing of the wood inside the cambium layer. Common in tender varieties, especially Baldwin. Not thoroughly understood but induced by over growth.

Injuries of all kinds were found to be worse on trees which have been either over-fed or under-fed, also on trees of which the foliage has suffered from insect attacks or from disease. Another important predisposing cause is the exhaustion of the tree through being allowed to over-bear.

It will be recognized that many of our established orchard practices will have to be revised in the light of this test winter. A bulletin is now in preparation setting forth detailed observations together with conclusions drawn from them. We are attempting to map the several climatic fruit sections of the Province and hope to supplement the same with a more reliable list of recommended varieties for the various districts than has yet appeared.

SUMMER PRUNING EXPERIMENTS.

The trees in all of these experiments were carefully pruned in August of this year. Some fruit was borne but no difference is as yet perceptible in favor of summer pruning. The trees in all the experiments are in good condition and interesting results are promised. Experiments conducted elsewhere indicate that summer pruning is not likely to hasten bearing but may increase productiveness after bearing starts and improve both color and quality of fruit.

POULTRY.

This has been a very unusual year in that the winter was exceptionally severe; feed was not only difficult to get but was inferior in quality; and labor was very scarce. These conditions interfered to a considerable extent with some of our experiments.

Fortunately for the poultry producers the prices of live and dressed poultry have been much more in keeping with feed prices than were the prices a year ago. The prices for eggs this year have also been very good.

With feed at prices that have been prevailing for the past two years, has, perhaps, impressed upon the poultryman the necessity of careful management of his business, the marketing of the poor producers, and the selling of surplus or non-productive stock at the time it was ready to market.

A NEW PRACTICE.

To the mind of the writer the most important information of the year is that by careful study of the changes that take place in a laying hen, it is now possible for a person with average intelligence to tell the high layers from the poor ones by simply examining the birds. The use of the trap-nest is expensive and takes a large amount of time. The plan, in detail, by which the culling is done was distributed at Toronto Exposition, and therefore it is unnecessary here. To do

the most good to the people over the Province, a practical culling demonstration should be conducted on at least one farm in each school section.

What is generally termed "extension work" has not been carried on during the war to any extent. It would appear that such work should again be taken up and in a much larger way.

The economic condition of the poultry business was never in a more favorable position and the value of eggs and poultry as a national asset is of great importance. Eggs contain one of the important growth factors and being of high digestibility it is important that this food be available for all of our people.

EGG PRODUCTION.

The general average egg production for the year was a dozen eggs per hen lower than for 1917. There were at least three reasons for this and it is difficult to say which was the most important factor. Where one is trying to build and maintain families of high layers, such results are not satisfactory and one is very much interested in the cause or causes. The factors influencing egg production are: breeding, age of stock, time of hatching, health of the stock, feeds and feeding, housing, and the weather. Unfortunately we were obliged to use several different feeders during the year. We were particularly unfortunate in having to change men early in the year. The kind and quality of grain feeds were considerably different to what had been fed in previous years. The winter weather was very much colder than usual. The decline in egg production came during the winter months which would suggest that the cold weather was the cause; against this is the fact that the May hatched birds did better than usual with the exception of January and February, and even here the decline was not as great as in the early hatched birds. It would appear that there were several causes and no one reason can be entirely responsible for the decline.

The production from all the 1918 chickens, during the months of September, October, and November was never better; in fact it was higher than in any previous year.

THE USE OF LIGHTS IN THE PEN.

It has been known for some time that by lighting the pens during the short days more eggs were likely to be produced if the birds were well managed. Apparently many birds' crops are too small to hold enough food above that required for body maintenance so that a surplus remains for egg production. At this season of the year, December 4th, there is not much more than nine hours of time in which a hen can see to eat. Below is given a report of a few trials with birds of two different breeds and of several ages.

The lights are put on at dusk and maintained until nine o'clock. The last feed at night is given about eight o'clock. At this season of the year between four and five hours of artificial lighting is used.

EGGS PRODUCED FOR WEEK BEGINNING.

—	Oct. 6	Oct. 13	Oct. 20	Oct. 27	Nov. 3	Nov. 10	Nov. 17	Nov. 24	Total
Pens 1 and 2—Lights. 50 April hatched W. Leghorn pullets..	53	150	211	250	265	257	213	219	1,618
Pens 5 and 6—No. Light, 50 April hatched W. Leghorn pullets..	14	74	133	174	179	190	185	143	1,092
Pen O—Lights. 30 yearling W. Leghorn hens	76	96	89	108	114	122	105	119	829
Pen 4—No Light. 30 yearling W. Leghorn hens	62	70	60	61	54	47	37	31	422
Pen A1—Light put on October 15th. 50 yearling Barred Rock hens.....	.....	80	91	153	149	159	118	117	861
Pen 32—No Light. 50 yearling Barred Rock hens.....	.....	85	75	87	79	69	68	78	541
A2 Pen—Light put on Oct. 20th. 50 May hatched Barred Rock pullets.....	.....	.....	3	26	83	123	170	197	602
Pen 26—No Light. 50 May hatched Barred Rock pallets..	.....	.....	10	10	9	19	43	60	151

The above table shows a marked increase in egg production from every pen. These trials have all been made with electric light. One ordinary light is used in a pen of twenty-five or thirty birds.

Elsewhere in the province very fair results have been secured from ordinary barn lanterns, gas, and gasoline lanterns. It takes about ten lanterns to light a house sixty feet by fourteen feet. One gasoline lantern does fairly well in a house twenty feet square.

One of the most interesting results from the use of lights was obtained from a pen of forty-one Leghorn hens in their fourth year of laying. The following is the total eggs laid by these hens for the month of November each year: 1915, 262 eggs; 1916, 88 eggs; 1917, 21 eggs; 1918, 426 eggs.

It may be interesting to many to know the yearly average production from these forty-one birds. It is as follows: first year—165 eggs each; second year—144 eggs each; and the third year 126 eggs each.

Taking the hens which produced 144 eggs or more during their pullet year, these same individuals represent practically 90 per cent. of best layers for the three years combined, or had we culled the flock at the end of their first year's laying, we would have missed four fairly good hens, or those that had laid more than 400 eggs in three years, and we would have included one bird which laid 397 eggs for three years, laying 152 in her first year; one which laid 328 eggs for the three years, laying 145 her first year; and also one bird which laid 285 during the three years, and 151 for the first year. The figures from these forty-one hens for three years' laying suggest that the first year's laying is a fair indication of what they will do in after years. The pullets hatched in May, 1915, were the poorest producers for the first year and are no better for the three years.

BABY CHICKS.

A number of feeding trials for baby chicks were conducted with chickens hatched by the summer school teachers. The birds were hatched about August 1st. The grain fed consisted of a mixture of one part shorts and two parts of fine corn

meal. This mixture was fed alone along with water to drink, as was also the mixture with sour milk to drink; also the mixture to which was added twenty per cent. of meat meal. We also tried the mixture with some egg yolk as well as sour milk to drink.

The grain mixture proved to be well adapted to chicks, especially as a feed for the first week. The egg and milk addition was the best feed given for growth, the milk alone was a good second. The addition of meat meal was not a good substitute for milk, and the grain mixture alone, without any animal food, was very poor after the first two weeks; in fact with this mixture alone the chicks at seven weeks hardly weighed twice as much as when hatched, or less than four ounces each.

BACTERIOLOGY.

BACTERIAL CULTURES FOR LEGUME SEED INOCULATION PREPARED AND SENT OUT.

A total of 1,813 cultures of legume bacteria for seed inoculation were sent out, made up as follows:

Alfalfa, 935; Red Clover, 315; Peas, 230; Sweet Clover, 106; Beans, 91; Alsike, 64; Soy Beans, 51; Sweet Peas, 14; Vetch, 3; Crimson Clover, 2; White Clover, 1; Cow Peas, 1.

LACTIC CULTURES PREPARED AND SENT OUT.

A total of 63 lactic cultures and 43 *Bulgaricus* cultures were sent to creameries, cheese factories and other applicants.

SPECIMENS RECEIVED FOR EXAMINATION AND REPORTED UPON.

The following diseases and abnormal conditions were found in specimens submitted to us from various parts of the Province, for examination:

Poultry.

Adenoma	Specimen from 1 hen.
Anæmia	1 hen, 1 pullet, 1 cockerel.
Apoplexy	2 hens, 1 cock.
Aspergillosis	1 hen.
Blackhead	2 turkeys.
Blind.....	1 hen.
Cold	Specimen from 1 cockerel.
Congestion of lungs	10 chicks, 2 hens.
Crop bound	1 hen.
Dropsy	1 hen.
Egg bound	Specimen from 1 hen.
Enteritis	7 chicks, 5 hens, 2 cocks, 1 pullet.
Fatty Degeneration	3 hens.
Hyperemia	1 chicken.
Inflammation of abdominal organs	1 hen, 1 pullet, 1 chick.
Impaction of gizzard	1 cock.
Jaundice	1 chicken.

Poultry.—Continued.

Limberneck	1 hen.
Ovaritis	1 hen.
Over-feeding	2 hens, 1 pullet.
Peritonitis	5 hens, 1 pullet.
Pleurisy	1 cockerel.
Poison	5 hens, 2 chicks, 2 pullets, 1 cockerel.
Roup	Specimen from 1 hen.
Rupture of abdominal wall	1 hen.
Rupture of heart	3 cocks, 1 hen.
Thrombosis	Specimen from 1 cockerel.
Tuberculosis	14 hens; specimen from 1 turkey.
Tumors	2 hens, 2 cockerels, 1 pullet, 1 duck.

Cattle.

Anthrax	Blood from heifer, negative.
Actinomycosis bovis	1 specimen, positive.
Tuberculosis	1 specimen from heifer, positive.

Swine.

Hog cholera	4 specimens: 2 negative, 2 positive.
Tuberculosis	1 specimen, positive.

Sheep.

Nodular disease of intestines	Specimen from 1 sheep, positive.
Congestion of lungs	Specimen from 1 sheep, positive.

Other Animals.

Coccidiosis	1 rabbit, positive.
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Human.

Diphtheria	9 specimens: 7 negative, 2 positive.
Tuberculosis	4 specimens: 2 positive, 2 negative.

Plant Diseases.

Blackleg of potatoes	2 specimens.
Fire blight	1 specimen.
Mixed infection of fungi, bacteria and nematodes	1 specimen rhubarb.
Bacterial soft rot of turnips	2 specimens.

Flour.

Mouldy	1 specimen.
Tilletia tritici contamination	1 specimen.

Farm Well Water Samples.

Condemned for contamination	61 samples.
Passed as fit for consumption	27 samples.

Milk.

Bacterial counts	2 samples (contaminated).
Ropy	4 samples.

The total number of specimens received and reported on was 219.

YEASTS AND MOLDS IN BUTTER AND CREAM.

At the instigation of the Chief Dairy Instructor for Western Ontario, a preliminary investigation was carried on, of the yeast and mold content of butter shipped to the Butter Grading Station at Toronto.

It was felt that our knowledge of the subject was limited and might with advantage be improved. The whole question of the relation of micro-organisms to butter quality and the causes (chemical, physical and biological) of butter spoilage, is more or less in the "melting pot" stage, and just what changes actually take place and what causes them, nobody is in a position at the present time to fully explain.

It was also our desire to find out whether the yeast and mold content of the butter would give us any indication as to whether it had been made from raw or pasteurized cream.

Whilst the tests made are limited in number owing to lack of laboratory assistance during the summer, and to the commandeering of all creamery butter by the Government in October, it was thought that the results so far secured were of sufficient interest to the creamerymen of Canada to justify their publication at this time.

A brief summary:

1. There was a marked variation in the yeast and mold content of butter from the different creameries and of different lots of butter from the same creamery.

2. The raw cream butter from four creameries contained large numbers of yeasts and molds.

3. The raw cream butter from two creameries contained a markedly smaller number of yeasts and molds, probably due to the smaller proportion of old, sour cream received.

4. The pasteurized cream butter showed an exceptionally low mold count as compared with the raw cream butter, while the difference in the yeast count was not nearly so marked on the whole.

5. The high yeast count of the pasteurized cream butter indicated inefficient pasteurization, or marked recontamination between the pasteurizer and finisher package.

6. Warming cream to 120-130 degrees F., flash method, as practised at one creamery, had no germicidal effect on the yeasts and molds in the cream. Possibly it stimulated dormant cells to grow and multiply, thereby aggravating the trouble one is usually striving to avoid.

The variety of mold found is that known as *Oidium lactis*, the natural habitat of which is old sour milk and cream. The spores of this mold are destroyed at comparatively low temperatures. Exposure to temperature of 140 degrees F. for 30 minutes was shown to completely destroy all spores present.

While butter containing numerous yeasts and molds may give good commercial satisfaction at times, as some of our work has shown, nevertheless, the larger creameries are coming to recognize the fact that butter with a low mold and yeast content, indicating efficient pasteurization and use of sanitary methods preventing recontamination, is a better risk for storage purposes than butter made in a less efficient way.

It is our intention to carry on, and expand if possible, this line of work during the coming year, depending on the time at our disposal and the facilities to hand, and it is hoped that in another year we shall have more extensive data to show.

AGGLUTINATION TEST OF COLLEGE POULTRY FOR *B. PULLORUM*, THE CAUSE OF WHITE DIARRHOEA OF CHICKS.

The Poultry Department requested us to follow up the work begun last year of testing, by means of the agglutination test, the College poultry breeding stock for *B. pullorum*, the cause of white diarrhoea of chicks. This bacillus causes diseased ovaries of apparently healthy birds, the eggs from which are liable to be infected thus causing either infertility of the egg or high mortality from white diarrhoea in the chicks hatched out.

From the preliminary work on 250 birds as reported on last year, it appeared that considerable of the older stock was infected, but only a small per cent. of the younger stock. The object of the test is to determine the infected birds so that these may be weeded out and the disease thus removed from the flock.

We are now systematically testing the entire breeding stock and have so far this season tested about 400 birds, most of them being either young or recently purchased. Seventeen positive reactions were obtained, giving a percentage of approximately four per cent. affected birds. The egg, hatchability and mortality records for these positive reacting birds appeared to confirm the value of this test as a step in the eradication of the disease from a flock.

DRAINAGE SURVEYS.

The new system of surveying has proved very satisfactory. With an average of four men last season we accomplished almost as much as the previous season with a greater number of men. This is due to the fact that one man is located at Chatham, one at Hamilton, and one at Guelph. These men have charge of the work in their districts, that is making their own arrangements regarding details of surveys, the work being directed from the central office at Guelph.

The following table gives the number of surveys made in the different Counties:

NUMBER OF SURVEYS MADE IN EACH COUNTY DURING THE SUMMER OF 1918

County	No. of Surveys	County	No. of Surveys
Brant	3	Muskoka	1
Carleton.....	1	Nipissing	2
Dundas	7	Norfolk.....	4
Elgin.....	4	Ontario	1
Essex	15	Oxford	21
Glengarry	2	Parry Sound.....	1
Grenville	1	Peel.....	1
Grey	6	Perth	5
Halton	8	Peterborough	1
Haldimand.....	1	Russell.....	1
Hastings	2	Victoria	8
Huron	4	Waterloo	1
Kent	37	Welland	1
Lambton.....	29	Wellington.....	12
Leeds	17	Wentworth	8
Lincoln	20	York	2
Middlesex	6		

The following table shows a statement of the survey work since its inception:

SUMMARY OF SURVEYS.

Year	Appropriation	Applications	Surveys	Held Over	Acres Surveyed	Miles of Drain	Demonstrations	
							No.	Average Attendance
	\$							
1906.....	Nil	15	15	.....	500	45	.....	.....
1907.....	Nil	126	70	56	3,500	350	.....	.....
1908.....	1,000	166	100	66	5,000	510	43	.....
1909.....	1,000	302	179	121	5,157	613	48	18.0
1910.....	4,000	518	383	135	14,672	1,800	132	23.6
1911.....	4,000	414	327	87	15,211	1,864	142	17.4
1912.....	4,000	430	293	137	17,212	2,278	70	21.7
1913.....	4,000	290	247	43	13,705	1,713	56	20.3
1914.....	4,000	296	250	46	13,386	1,673	23	20.9
1915.....	4,000	291	263	28	15,336	1,917	8	12.8
1916.....	4,000	367	318	49	14,694	1,731	4	65.0
1917.....	4,000	343	255	88	11,988	1,489	.....	.....
1918.....	4,000	274	233	41	10,911	1,284	.....	.....
Totals.....	.....	.....	2,933	.....	141,272	17,247	526	.....

VALUE OF DRAINAGE.

A questionnaire was sent out to quite a number of parties who had more than 30 acres surveyed, and 131 answers were received. Of those answering the question "Does drainage lessen winter injury," 80 per cent. answered in the affirmative, of the other 20 per cent. 8 per cent. answered "NO," some did not know and some did not answer the question. In answer to the question, "What crops did drainage benefit most," the majority of answers favored grain and root crops, and the single crop most frequently mentioned was corn. This may be partially due to the fact that quite a number of these answers were received from the corn growing district. In answer to the question, "How long did it take to pay for drainage?" which means how soon did the increased profits pay drainage, the average of the answers given was three years, while nine correspondents stated that the total cost of drainage was paid for due to the increase in the first crop. In all cases it was stated the tile was in good condition and some of the tile has been in for 30 years. In the majority of cases clay tile has been used. In the two dozen cases where concrete has been used all have been reported to be in good condition, but none of these systems where concrete has been used have been in many years.

Considering the whole 131 cases the average depth would be about 2¾ feet, the most shallow installation running 2 feet and the deepest about 3½ feet. Out of the 131 cases one answer was to the effect that the results were not very pronounced, all the others were good. One correspondent from Cottam saying "It does not pay to farm unless land is tile drained." Another one from W. Monkton, Huron County, states, "Crops are doubled." Another one from Ruthven, Essex County, states, "Land is easier worked." Another one from Elmvale, Simcoe County, states, "All crops were benefited except frogs."

From the information we have gathered regarding this matter of the value of drainage our correspondents appear to be all in favor of this work and some are not backward in lauding the benefits to be derived from drainage.

FIELD HUSBANDRY.

FIELD CROPS.

O.A.C. No. 104 variety of Winter Wheat.

A large amount of work in cross fertilization has been carried out in the Field Husbandry Department of the College within the past few years. The object has been to secure new varieties which would be more suitable for Ontario than even the best of the named varieties which have been obtained through extensive experimental work and through selection of individual plants. We have a large number of cross-bred varieties of nearly all classes of grain crops and some of these are particularly promising, especially in certain characteristics.

It might be interesting in this connection to give the history of the O. A. C. No. 104 variety of winter wheat which has been originated at Guelph and which was distributed to farmers for co-operative experiments for the first time in the autumn of 1916, after being tested in the experimental plots at the College for a period of five years.

In the summer of 1881 Robert Dawson, a farmer living near Paris, Ontario, had a promising field of the White Clawson variety of winter wheat. A very heavy storm caused the grain on this field to become badly lodged. Mr. Dawson while walking over the field of grain which had been flattened and partly beaten into the ground found one plant, the stems of which were mostly standing. He thought that possibly as this plant was more erect than others it might be due to an unusually stiff straw. As the grain was ripening at the time he carefully saved the heads from this single plant. These were shelled by hand and the grains were sown in a little piece of ground near the house in the following autumn. As the growth was promising Mr. Dawson was soon enabled to increase the crop sufficiently to not only supply his own requirements but also to sell seed to his neighbors. A bag of the new wheat under the name of Dawson's Golden Chaff, was entered at the Autumn Seed Fair at Guelph and received first prize. It was tested in the experimental plots at the Ontario Agricultural College and proved to be one of the stiffest strawed and most productive varieties under test. It was later distributed to farmers over Ontario through the medium of the Ontario Agricultural and Experimental Union. It was increased in various localities and has for a number of years past been the most popular and most extensively grown winter wheat in Ontario. It has a stiff straw, a red beardless head and a white grain. Although the Dawson's Golden Chaff is a heavy yielder, the grain is comparatively soft and is more suitable for the manufacture of pastry and of breakfast foods than of flour for manufacturing into bread.

Another important variety of winter wheat known as the Bulgarian has been under test at the College for many years. It is also a white wheat but with a medium strength of straw and a medium yield of grain per acre. This variety, however, has made a high record for bread production as shown by tests in the Bakery Department at the College. It was thought that if the Dawson's Golden Chaff and the Bulgarian varieties could be cross-fertilized and a new variety originated, eliminating the undesirable and retaining the most desirable characteristics of the two parents, a very valuable acquisition might be made to agriculture.

A complete flower consists of two essential parts, the stamen and the pistil, and two floral envelopes, the corolla and the calyx. The two former contain the organs of reproduction and the two latter give the brilliancy and the beauty to the

flower. Either the corolla or calyx or both may be absent in which case the flower is said to be incomplete. It is usual for the stamens and the pistil to be in the same flower. Sometimes they occupy separate flowers on the same plants and occasionally the stamens are produced on one plant and the pistils on another. In the case of wheat both the stamens and the pistil are found in the same flower. In each flower there are three stamens and one pistil. The stamens contain the pollen grains which are small, uniform and yellow in color, and the pistil the egg cells. For reproduction to take place it is essential that each egg cell be fertilized from a pollen grain.

Some of the farm crops such as wheat, barley, oats, peas and beans are naturally self-fertilized owing to the fact that fertilization takes place before the flowers are opened and exposed. In other instances, however, such as corn and rye, natural cross-fertilization takes place. This is clearly demonstrated in the case of corn. Every silk emanating from an ear must receive a vital pollen grain before a kernel of corn can be produced. As the pollen grains are produced on the upper part of the plant and the ears of corn some distance below, the pollen is usually conveyed to the corn silks through the agency of the wind. This accounts for the frequent mixing of varieties when grown in near proximity to each other.

From what has been said it is evident that in order to secure hybrid grains of wheat it is necessary to artificially cross-fertilize the flowers. The O. A. C. No. 104 variety of winter wheat originated from a single cross between flowers of a choice plant of each of the Dawson's Golden Chaff and the Bulgarian varieties. Soon after a head of Bulgarian wheat appeared above the sheath a flower was carefully opened and the three immature stamens were removed. These were replaced by ripened anthers and pollen grains taken from a choice head of Dawson's Golden Chaff. In due time fertilization took place and a hybrid grain was produced. This grain in the course of a few years produced a great variety of plants possessing different combinations of the characteristics of the two parents. These were carefully studied and the one which received number 104 was found to possess in itself a combination of a number of the most desirable features of the two parent varieties.

For eight years in succession the O. A. C. No. 104 variety of winter wheat has been tested in the uniform plots with the other varieties. The following is the average results of the new hybrid wheat in comparison with each of its parents for the eight-year period.

Varieties.	Average results for eight years		
	Weight per measured bush. (lbs.)	Yield per acre	
		Straw (tons)	Grain (bus.)
O.A.C. No. 104.....	60.1	2.64	45.7
Dawson's Golden Chaff.....	58.4	2.29	42.4
Bulgarian	59.3	2.37	36.6

In the experiments at the College the O. A. C. No. 104 proved to be one of the hardiest varieties in the past year when so much damage was done by winter killing.

This wheat has been distributed throughout Ontario in connection with the co-operative experiments in each of the past three autumns. In each of the two

years for which we have returns it has proven both productive and popular with the experimenters surpassing in yield per acre the other varieties under test.

The O. A. C. No. 104 variety of winter wheat is a vigorous grower with a comparatively stiff straw. The grain is white and the head resembles the Dawson's Golden Chaff in being beardless, and the Bulgarian in having a white chaff. It is to be hoped that this off-spring may prove of even greater service than either of its parents.

This new wheat is not yet obtainable in large quantities, but there will probably be some seed available from the co-operative experimenters by next autumn.

IMPORTATION OF NO. 6 WHEAT FOR SEED.

Owing to the unfavorable weather conditions in Ontario in the autumn of 1917, a smaller area than usual was sown with wheat. The winter and spring being unusually severe it is estimated that fifty-six per cent. of the winter wheat was ploughed down in the spring of the present year. Many of the fields which were left were resowed with barley and spring wheat in patches or over the whole surface. In some of the localities therefore, home-grown seed wheat of good quality was exceedingly scarce this autumn, and needed to be supplemented by wheat from an outside source. The writer studied the winter wheat condition in each of five states bordering on Ontario and finally went to New York State and made special arrangements by which a good supply of the best seed obtainable of No. 6 wheat was secured from farms in the western section of the Genesee Valley. This wheat was cleaned at the local elevators and carefully recleaned at Niagara Falls. The wheat was then distributed in car-load lots to the following counties:—Wentworth, Grey, Lennox, Peel, York, Perth, and Haldimand. Some of these counties received more than one carload. The record of this new importation will be watched with interest in these different localities.

The No. 6 variety of winter wheat was originated by Ira W. Green at Avon, New York State, and it is at present the most popular winter wheat grown in the Genesee Valley. This variety of winter wheat closely resembles in appearance the Dawson's Golden Chaff, except that the head is less tapering and the upper portion of the straw is somewhat colored. In the average of nine year's experiments at the College it has yielded fully equal to the Dawson's Golden Chaff, and has produced grain which is of somewhat better quality for bread production.

THE O. A. C. NO. 21 VARIETY OF BARLEY.

The O. A. C. No. 21 variety of barley has become exceedingly popular throughout the Province and is supplanting all other varieties even the Mandscheuri which the College introduced about thirty years ago and which has done so much in the improvement of barley growing in Ontario. It is now estimated that about 95 per cent. of all the barley which is grown in Ontario belongs to the Mandscheuri or the O. A. C. No. 21 varieties, the latter largely predominating. Of about forty entries of barley at the Provincial Winter Fair held in each of the past three years, with only one exception in one year, all the entries were of the O. A. C. No. 21 variety. In the competition of Standing Field Crops throughout Ontario last year, there were 53 fields of barley entered. Of this number, 44 were of the O. A. C. No. 21 and eight of the Mandscheuri variety, leaving only one entry of any other kind. In the Standing Field Crop Competitions throughout Ontario for the past three years, the O. A. C. No. 21 has taken first place without an exception in all of the twenty-eight separate competitions with barley, there being at least ten fields entered in each competition.

GRAINS GROWN IN COMBINATION.

According to the reports of the Ontario Bureau of Industries the areas used for mixed grains was 619,389 acres in 1918, 515,593 acres in 1917, and 485,986 acres in 1916. In no year did the acreage reach one half million until 1917. It will, therefore, be seen that the farmers of Ontario are growing grains in combination in increasing quantities.

In the past twenty-four years a large number of experiments have been conducted at the College in growing different classes and different varieties of grain in combination for the production of green fodder, of hay and of grain. Many valuable results have been obtained. A number of these have already been presented in the annual reports of past years and other experiments are now under way.

The results of the experiments show that for green fodder and for hay, a mixture of two bushels of oats, such as, the Siberian, the O. A. C. No. 72, or the Banner varieties and one bushel of peas, such as, the Multipliers, the Golden Vine, or the Prussian Blue varieties, makes an admirable seeding for growing in combination.

For grain production, one bushel of the O. A. C. No. 3, the Daubeney, or the Alaska oats combined with one bushel of the O. A. C. No. 21 barley have given excellent satisfaction as a farm crop. The O. A. C. No. 3 oats have largely taken the place of the Daubeney variety for this purpose. The results of our experiments have shown that a combination of the best variety of oats and the best variety of barley, grown together in the right proportion, will produce on an average fully two hundred pounds of grain per acre more than either one grown separately. The experiments, which have been conducted in the past at the College, seem to indicate that there is but little advantage from growing in combination two different varieties of the same class of grain but there are often marked advantages from growing suitable varieties of different classes of grain together. Of all the combinations used, none have given as large a yield of grain per acre as the most suitable combination of oats and barley.

MANGEL SEED PRODUCTION IN ONTARIO.

In 1917 we planted at the College a little less than an acre of stecklinge of our own selected strain of the Yellow Leviathan mangel. This acre gave us 1,263 pounds of well-matured, thoroughly cleaned mangel seed which gave a germination of over 200 per cent. from the mangel clusters. The most of this seed was sold in the spring of the present year at \$1.50 per pound as stock seed for the production of more stecklinge. We could evidently have sold our complete supply at that price but kept a few hundred pounds for fear of shortage in 1918. If we had sold the entire amount it would have brought over \$2 000 for the amount of seed produced on less than one acre. The seed for 1918 when thoroughly dried and cleaned weighed 1,341 pounds. This was obtained from an area of one and one-half acres of the O. A. C. selected strain of the Yellow Leviathan variety.

In the average results for ten years at our College very careful field tests show that our home grown mangel seed gave an average percentage of germination from the clusters of 119 per cent., while in the average of the same ten years, the imported seed obtained through three of the leading seed houses gave 77, 77 and 76 per cent. We have not obtained imported seed from any source which has given us as high a percentage of germination over a series of years as we have obtained from the seed produced at Guelph.

HIGH YIELDS FROM COW CABBAGE.

We have conducted an interesting experiment at the College in which other crops than rape have been tested. This experiment has included kale, cow cabbage, sprouting Boroccoli and rape and furnishes some good information in the comparative results of these crops when grown in Ontario under similar conditions. In 1918, eleven varieties belonging to the rape class were under experiment. The crops were all sown in rows three and one-third links (26-2/5 inches) apart. Each plot was exactly 1/100 of an acre in size consisting of three rows each four rods in length. The experiment was conducted in duplicate. The land between the rows was cultivated occasionally throughout the growing season. When the crops had reached their best condition for feeding each variety was cut with a scythe and weighed immediately. This description applies equally well to each of the years in which we have conducted this experiment. In England, where the cabbages are grown more extensively, they are frequently transplanted and a sufficient distance is allowed between the plants to enable the heads to be formed. In our experiments at Guelph, however, we have treated the different kinds of cow cabbage in exactly the same way as we have treated rape. The heads of the cabbage have been quite small, the growth being largely leaf and stem. The following table gives the average results in tons of green crop per acre in 1918 and for the average of nineteen years:—

	Yield of Green crop per acre (tons)	
	1918	Average 19 years
Sutton's Earliest Drumhead Cabbage	17.30	23.26
Thousand Headed Kale	13.37	19.82
Purple Sprouting Boroccoli	11.98	19.07
Dwarf Essex Rape.....	11.60	18.14

MACDONALD INSTITUTE.

THE NORMAL COURSE IN DOMESTIC SCIENCE.

Fifteen entered this course in 1916; twelve passed to the senior class in 1917; eleven passed the final examinations last June and have received the Macdonald Institute Teachers Certificate in Domestic Science.

Thirteen entered the junior class in September 1917; eight passed on to the senior class last September and are now in attendance.

Eighteen entered the junior class last September and are now in attendance. This is more than we planned to accept, but after the class was filled the South African Government cabled a request for the admission of four picked teachers on Government scholarships, and we decided to accept them.

THE ASSOCIATE COURSE.

Twelve entered this course in 1916; nine passed on to the senior class in 1917; eight passed the final examinations last June, and have received the Macdonald Institute Associate diploma.

Sixteen were admitted to the junior class in September 1917; nine passed on to the senior class last September and are now in attendance.

Twenty-seven entered the junior class last September and are now in attendance.

Four graduates returned for a third year's work in the Autumn term 1917; two dropped out to take positions, one left to be married, leaving one who finished the year.

THE HOUSEKEEPER COURSE.

Twelve entered the course in September 1916; nine passed on to the senior class in 1917; eight passed the final examinations, and have received the Macdonald Institute Housekeeper certificate.

Twenty-one entered the junior class in September 1917; seventeen passed on to the senior class last September, and sixteen are now in attendance.

Thirteen were admitted to the junior class last September and are now in attendance.

Ten former graduates, having completed six months' institution housekeeping, were granted the Macdonald Institute Professional Certificate.

THE HOMEMAKER COURSE.

Nineteen entered the course in September 1917; six passed the final examinations last June and have received the Macdonald Institute Homemaker diploma.

Twenty-one were admitted to this course last September, and twenty are now in attendance.

THE SHORT COURSES.

These had in attendance:—

In the Winter term, January to March	35
In the Spring term, April to June	8
In the Autumn term, September to December	5

The small numbers of last Spring and this term, seem to be due to the urgent demand for girl labor on the farms, in munition works, banks, factories, etc. There seems every prospect of another large class in the coming Winter term.

OTHER STUDENTS.

Twenty-one Optional students joined various sewing and lecture courses through the year.

Four Student-workers have taken the opportunity to pay for courses by service in Macdonald Hall; one served seven months, and three served four months.

REPORT OF LOAN COLLECTION WORK FOR WOMEN'S INSTITUTES.

Requests—

Home interests	31
House and housekeeping	53
Food and cookery	74
Dietetics	13
Health	25
Household finance	19
Education, home economics and general	23
Clubs, social service, etc.	74
Gardening and agriculture	17
Patriotic	27
Miscellaneous	27

Total 539

Answered by—

- 1,118 folders with pamphlets, articles or clippings.
 37 books.
 25 special letters.
 28 letters regretting material out.
 31 letters referred to Mr. Putnam, or to other Departments of the College.

APPOINTMENTS OF MACDONALD INSTITUTE GRADUATES IN 1918.

TEACHERS.

	Class of	Appointed to
Miss M. Balkwill	1917	Alma College, St. Thomas, Ont.
" M. E. A. Beatty	1918	Public Schools, Calgary, Alberta.
" G. Dutcher	1907	Public Schools, Vernon, B.C.
" H. L. Easton	1916	State School for the Deaf, Flint, Mich., U.S.A.
" M. Geddes	1917	St. Christopher House, Toronto, Ont.
" E. D. Hartley	1909	High School, Brantford, Ont.
" F. Hutton	1914	Public Schools, Brandon, Man.
" M. Kelso	1915	Head of Household Science, Agricultural College, Winnipeg, Man.
" C. A. Kennedy	1915	Public Schools, Sarnia, Ont.
" O. Lawson	1918	Agricultural School, Vermilion, Alberta.
" A. B. Marcellus	1914	Public Schools, Prince Rupert, B.C.
" M. N. Scott	1916	Public Schools, Stratford, Ont.
Mrs. Yuill	1916	Acadia Seminary, Wolfville, N.S.
Miss A. Staples	1918	Public Schools, Vancouver, B.C.
" M. B. Watson	1916	Normal School, Regina, Sask.

HOUSEKEEPERS AND DIETITIANS.

	Class of	Appointed to
Miss E. C. Bonnell	1913	Hospital for Feeble-Minded, Orillia, Ont.
" A. M. Bott	1918	Havergal College, Toronto, Ont.
" M. I. Campbell	1915	Maternity Hospital, Montreal, Que.
Mrs. M. Davis	1918	Y.W.C.A., Kitchener, Ont.
Miss M. Dunbar	1915	Y.W.C.A., Calgary, Alberta.
" H. E. Grant	1917	Moosejaw College, Moosejaw, Sask.
" K. M. Percy	1913	State University Hospital, Columbus, Ohio, U.S.A.
" E. Zavitz	1918	General Hospital, Cornwall, Ont.
" J. Bradley	1915	Johns Hopkins Hospital, Baltimore, U.S.A.
" D. Bright	1918	University Hospital, Ann Arbor, Mich., U.S.A.
" E. Casselman	1918	General Hospital, Brockville, Ont.
" E. Elliot	1917	Aged Men's, Aged Women's Homes and Industrial Refuge, Toronto, Ont.
" E. H. Fearman	1912	General Hospital, Hamilton, Ont.
" J. McKenzie	1907	General Hospital, Vancouver, B.C.
" A. W. Murray	1916	Amasa Wood Hospital, St. Thomas, Ont.
" B. Roulston	1914	General Hospital, Kingston, Ont.
" M. A. Witmer	1917	Earl Grey Sanitarium, Regina, Sask.
" M. H. Turpin	1914	Drummond St. Convalescent Hospital, Montreal, Que.
" D. Chown	1917	Overseas under Red Cross.
" G. Manning	1915	Overseas under Red Cross.
" E. Robertson	1918	Overseas under Red Cross.

OTHER WORK.

	Class of	Appointed to
Miss E. M. Aitken	1918	Y.W.C.A., Beamsville, Ont.
" P. Gray	1915	Community Canning Centre, Guelph, Ont.
" O. E. Hayes	1915	Food Conservation Specialist on British Columbia Food Committee.
" N. C. Goldie	1914	Secretary, Toronto Ladies' Club, Toronto, Ont.
" M. H. Williams	1916	Dept. of Agriculture, Women's Institute Branch, Edmonton, Alberta.

SUMMARY OF ATTENDANCE IN 1918.

A.—January to June, completing the College year 1917-1918.	
1. Normal Domestic Science—two-year course:	
(a) Juniors	12
(b) Seniors	12
2. Associate—two-year course:	
(a) Juniors	12
(b) Seniors	9
(c) Third Year	2
3. Housekeeper—two-year course:	
(a) Juniors	20
(b) Seniors	9
4. Homemaker—one-year course	19
5. Short Courses in Domestic Science:	
(a) Winter term students	35
(b) Spring term students	8
6. Optional Students	14
7. Student-Workers	3
8. Public School Classes	74
B.—September to December, opening the College year of 1918-1919.	
1. Normal Domestic Science—two-year course:	
(a) Juniors	18
(b) Seniors	8
2. Associate—two-year course:	
(a) Juniors	27
(b) Seniors	9
3. Housekeeper—two-year course:	
(a) Juniors	13
(b) Seniors	17
4. Homemaker—one-year course	21
5. Short Course in Domestic Science—three months	5
6. Optional Students	7
7. Student-Worker	1
8. Public School Classes	80
C.—Students entered in both above lists	56
D.—Total number of students in 1917	360
Total number of students in 1918	379

LIST OF GRADUATES FROM HOME ECONOMICS COURSES IN 1918.

Graduates of the Normal Course in Domestic Science:

1.	Miss Marie A. E. Beatty	522 18th Ave. W., Calgary, Alta.
2.	" Jean I. K. Garrow	633 Furby St., Winnipeg. Man.
3.	" Alice M. Jackson,	North Lynd Farm, Downsview, Ont.
4.	" Marion Kerr	232 College Ave., Sarnia, Ont.
5.	" Olive G. Lawson	735 13th St., Brandon, Man.
6.	" Marion H. MacBride	Kentville, N.S.
7.	" Helen Soule	Chesterville, Ont.
8.	" Adalene Staples	456 Greenwood Place, Winnipeg, Man.
9.	" Eva Wade	134 13th St., Brandon, Man.
10.	" Edith Wark	280 Pacific Ave., Toronto Ont.
11.	" Ella M. Young	Kentville, N.S.

Graduates of the Housekeeper Course:

1.	Miss Ella M. Aitken	Beeton, Ont.
2.	" Alpha M. Bott	R.R. No. 4, Embro, Ont.
3.	" Verna C. Fleming	R.R. No. 3, Woodstock, Ont.
4.	" Eileen Hodgins	1 Centre St., St. Catharines, Ont.
5.	" Janet M. McLaren	R.M.D. No. 6, Perth, Ont.
6.	" Helen C. Robertson	Barrington Passage, N.S.
7.	Mrs. Jean M. Stone	Red Wing, Ont.
8.	Miss Edith E. Zavitz	R.R. No. 2, Ilderton, Ont.

Graduates of the Associate Course:

1. Miss Marion S. Case124 Grenadier Road, Toronto, Ont.
2. " Eloie CasselmanMorrisburg, Ont.
3. " Dorothy C. Day69 Mont St., Guelph, Ont.
4. " Annie G. E. Gow105 Lower Union St., Kingston, Ont.
5. " Irene GrahamO. A. C., Guelph, Ont.
6. " Mary B. McWilliamDutton, Ont.
7. " Olive G. MoffattRenfrew, Ont.
8. " Edna Nelson69 Wellington St., St. Thomas, Ont.

Graduates of the Homemaker Course A:

1. Miss Muriel BoyceSault Ste. Marie, Ont.
2. " Helen J. GrahamR.R. No. 1, Britannia Bay, Ont.
3. " Helen M. LogieParis, Ont.
4. " A. May Peebles215 Herkimer St., Hamilton, Ont.
5. " Ruth Sinclair216 William St., Belleville, Ont.
6. " Ada G. SpauldingR.R. No. 4, Embro, Ont.

Graduate of the 1915-1917 Housekeeper Course:

1. Miss Mary H. Healey100 King St., St. Catharines, Ont.

I append the financial statement prepared by Mr. S. Springer, Bursar.

I have the honour to be,

Your obedient servant,

G. C. CREELMAN.

Guelph, December 30th, 1918.

FINANCIAL STATEMENT, 1918.

COLLEGE DEPARTMENT.

EXPENDITURE.

Salaries and wages	\$88,309 29
Servants' payroll	6,723 01
Meat, bread, groceries, laundry, engine-room supplies and fuel	54,470 73
Advertising, printing, postage and stationery	3,997 51
Expenses, Short Courses	1,997 50
Temporary assistance	3,861 54
Student labor	3,858 84
Travelling expenses and extra lectures	1,999 43
Library	1,887 37
Expenses, College Judging Team	200 00
Scholarships	90 00
Telephone service, rents, etc.	655 00
Furnishings and repairs	4,792 51
Sewage	780 00
Contingencies	1,297 83
Maintenance, five laboratories and gymnasium	7,429 95
Apparatus, machinery, fuel and expenses for course in Farm Power	498 54
<hr/>	
Total expenditure	\$182,849 05
Less revenue	32,333 43
<hr/>	
Net expenditure	\$150,515 62

REVENUE.

Board	\$24,973 15
Tuition and laboratory fees	6,459 50
Chemical analyses	49 50
Rent of rooms	124 00
Rent of cottages	255 00
Rent of post-office boxes	37 00
Supplemental examinations	50 00
Fines, breakages and extra meals	222 70
Sundries	162 58
<hr/>	
Total revenue	\$32,333 43

STUDENT LABOR.

(12 months.)

<i>Total Per Month.</i>		<i>To Different Departments.</i>	
November	\$470 06	College	\$458 88
December and January	473 38	Chemical	29 07
February	332 78	Botany	19 98
March	433 98	Bacteriology	17 69
April	143 77	Physics	130 98
May	171 81	Entomology	11 47
June	311 70	Gymnasium	5 76
July	354 46	Library	67 71
August	268 10	Farm	984 58
September and October	898 80	Experimental	345 19
<hr/>		Dairy	16 36
Total	\$3,858 84	Poultry	127 27
		Horticulture	1,502 06
		Mechanical	123 21
		Apiculture	18 63
		<hr/>	
		Total	\$3,858 84

MACDONALD INSTITUTE AND HALL.

EXPENDITURE.

Salaries and wages	\$17,801 50
Servants' paylist	2,273 65
Meat, bread, groceries, furnishings, repairs, laundry, engine-room supplies, fuel, and labor on grounds	22,094 74
Library and stationery	601 59
Maintenance of laboratories in Institute	2,919 14
Total expenditure	\$45,690 62
Less revenue	21,204 61
Net expenditure	\$24,486 01

REVENUE.

Board	\$13,946 80
Tuition	7,000 00
Supplemental examinations	16 00
Fines, breakages, etc.	241 81
Total revenue	\$21,204 61

FARM DEPARTMENT.

EXPENDITURE.

Permanent improvements	\$821 42
Wages of men, foreman and stenographer	11,236 72
Purchase and maintenance of stock	16,399 23
Farm maintenance, including repairs, blacksmithing, binder twine, seed, furnishings, fuel, light, advertising, printing, stationery, tools, imple- ments, etc.	3,499 78
Contingencies	348 27
Total expenditure	\$32,305 42
Less revenue	20,036 88
Net expenditure	\$12,268 54

REVENUE.

Sale of Cattle:—

20 Bulls at from \$47.50 to \$450.00	\$3,612 50
35 Cows at from \$56.80 to \$1,100.00	6,323 80
2 Heifers at from \$50.00 to \$152.50	202 50
3 Calves at from \$12.00 to \$35.00	67 00
4 Steers, 4,253 lbs. at from \$14.00 to \$20.00 cwt.	731 93
	\$10,937 73

Sale of Pigs:—

31 Sows at from \$27.50 to \$95.00	\$1,840 00
19 Boar Pigs at from \$12.00 to \$60.00	341 00
3 Pigs at from \$50.00 to \$60.00	160 00
56 Hogs, 11,020 lbs. at from \$17.50 to \$19.25 cwt.	2,008 96
	4,349 96

Sale of Sheep:—

1 Old Ewe	15 00
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Sale of Milk:—

22,926 qts. at from .04 to .05½	\$1,137 35
73,275 lbs. at from \$1.90 to \$2.40 cwt.	1,467 74
	2,605 09

Service of animals	229 00
Sale of 20,040 lbs. ensilage at \$4.50 ton	45 09
Sale of 1,902 bushels turnips at 20c.	380 40
Sale of 562 bags potatoes at \$1.25	702 50
Sale of 212½ bushels wheat at \$2.10	445 90
Sale of 435¾ lbs. wool at 66¾c.	290 62
Sundries	35 59

Total revenue	\$20,036 88
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FIELD HUSBANDRY.

EXPENDITURE.

Permanent improvements	\$693 35
Assistant, specialist in plant breeding, stenographer, foreman, teamsters and laborers	16,740 69
Seeds, manure and special fertilizers	854 01
Furnishings, implements, repairs, blacksmithing, etc.	1,097 76
Printing, postage, stationery and contingencies	527 66
Purchase and feed of horses	498 58
Total expenditure	\$20,412 05
Less revenue	1,243 50
Net expenditure	\$19,168 55

REVENUE.

Sale of 829 lbs. mangel seed at \$1.50	\$1,243 50
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DAIRY DEPARTMENT.

EXPENDITURE.

Permanent improvements	\$157 09
Wages, including foremen, cheesemaker, buttermaker, engineer, stenographer and bookkeeper, assistant and official tester of dairy cattle	3,808 58
Purchasing, hauling and manufacturing milk into butter and cheese	3,920 14
Furniture, furnishings, repairs, etc., laboratory expenses, gas, chemicals, etc., and contingencies	999 27
Fuel and light	1,076 52
Total expenditure	\$9,961 60
Less revenue	2,295 87
Net expenditure	\$7,665 73

REVENUE.

Sale of cheese, 5,468¾ lbs. at from 7c. to 50c.	\$1,233 57
Sale of butter, 218 lbs. at from 20c. to 45c.	77 76
Sale of ice cream, 51⅓ gallons at from 80c. to \$1.60	43 30
Sale of cream, 1,378¾ quarts at 25c.	344 71
Sale of milk, 420 quarts at 5c.	21 00
Sale of skim milk and buttermilk, 129,720 lbs. at 25c. cwt.	324 32
Sundries	11 21
Rent	240 00
Total revenue	\$2,295 87

DAIRY SCHOOL.

EXPENDITURE.

Wages of instructors, engineer, janitor, stenographer and bookkeeper	\$2,234 00
Cleaning, painting, repairs and contingencies	173 80
Dairy appliances, separators, vats, expenses cheese and butter judges, inspecting factories, etc.	444 30
Advertising, printing, stationery, books, papers, etc.	147 21
Fuel and light	600 00
Purchase of milk for cheesemaking and cost of hauling milk and cream ..	3,999 28
Total expenditure	\$7,598 59
Less revenue	1,546 69
Net expenditure	\$6,051 90

REVENUE.

Sale of cheese, 5,604 $\frac{1}{8}$ lbs. at from 7c. to 40c.	\$1,224 23
Sale of ice cream, 30 $\frac{3}{4}$ gallons at from \$1.20 to \$1.60	39 10
Sale of cream, 643 $\frac{1}{2}$ quarts at 25c.	160 87
Sale of milk, 100 quarts at 5c.	5 00
Sale of skimmilk and buttermilk, 44,050 lbs. at 25c. cwt.	110 13
Sundries	7 36
Total revenue	<u>\$1,546 69</u>

POULTRY DEPARTMENT.

EXPENDITURE.

Permanent improvements	\$77 89
Wages of assistant, stenographer and temporary assistance	2,985 00
Purchase of stock	298 40
Furnishings and repairs	2,299 65
Fuel, light and contingencies	1,407 18
Experiments with incubators, fattening and feed	9,298 98
Feed of horse	83 00
Total expenditure	<u>\$16,450 10</u>
Less revenue	9,632 42
Net expenditure	<u>\$6,817 68</u>

REVENUE.

Sale of live poultry, 826 birds for	\$1,505 25
Sale of dressed poultry:—	
6,671 $\frac{5}{8}$ lbs. at from 19c. to 60c.	\$1,963 71
22 broilers at \$1.00	22 00
	<u>1,985 71</u>
Sale of eggs for hatching:—	
684 settings at from \$1.00 to \$3.00	\$1,274 55
13,767 eggs at from 6c. to 13c.	1,511 59
	<u>2,786 14</u>
Sale of eggs for domestic use:—	
7,497 $\frac{1}{6}$ dozen at from 20c. to 75c.	3,325 11
Sundries	30 21
Total revenue	<u>\$9,632 42</u>

HORTICULTURE DEPARTMENT.

EXPENDITURE.

Permanent improvements	\$498 48
Foreman, fireman, stenographer, teamsters and laborers	10,499 76
Manure, trees, plants, bulbs, implements, tools, furnishings, repairs and contingencies	3,197 10
Fuel and light	844 93
Feed of horses	498 00
Purchase of horse	200 00
Total expenditure	<u>\$15,738 27</u>
Less revenue	1,620 35
Net expenditure	<u>\$14,117 92</u>

REVENUE.

Sale of fruit and vegetables as per statements rendered monthly	\$1,520 35
Sale of one old horse	100 00
Total revenue	<u>\$1,620 35</u>

MECHANICAL DEPARTMENT.

EXPENDITURE.

Salary of foreman	\$1,200 00
Tools, furnishings and repairs	247 67
Total expenditure	\$1,447 67

APICULTURE DEPARTMENT.

EXPENDITURE.

Wages, equipment and maintenance	\$1,749 77
Less revenue	101 25
Net expenditure	\$1,648 52

REVENUE.

Sales of honey, 703 lbs. at from 13c. to 15c.	\$101 25
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SOIL PHYSICS DEPARTMENT.

EXPENDITURE.

Services and expenses of temporary assistants in connection with Farm Drainage Demonstrations	\$3,999 00
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FORESTRY DEPARTMENT.

EXPENDITURE.

Contingencies	\$990 35
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SUMMARY.

	Expenditure.	Revenue.	Net Expenditure.
College	\$182,849 05	\$32,333 43	\$150,515 62
Macdonald Institute and Hall	45,690 62	21,204 61	24,486 01
Farm	32,305 42	20,036 88	12,268 54
Field Husbandry	20,412 05	1,243 50	19,168 55
Dairy	9,961 60	2,295 87	7,665 73
Dairy School	7,598 59	1,546 69	6,051 90
Poultry	16,450 10	9,632 42	6,817 68
Horticulture	15,738 27	1,620 35	14,117 92
Mechanical	1,447 67	.....	1,447 67
Apiculture	1,749 77	101 25	1,648 52
Soil Physics	3,999 00	.....	3,999 00
Forestry	990 35	.....	990 35
	\$339,192 49	\$90,015 00	\$249,177 49

S. SPRINGER,
Bursar and Superintendent.

Ontario Department of Agriculture

FORTIETH ANNUAL REPORT

OF THE

AGRICULTURAL

AND

EXPERIMENTAL UNION

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO

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1919

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To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in
The Militia of Canada, etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour
the report of the Agricultural and Experimental Union for 1918.

Respectfully submitted,

GEO. S. HENRY,

Minister of Agriculture.

Toronto, 1919.

Ontario Agricultural and Experimental Union

OFFICERS FOR 1919

<i>President</i>	HON. NELSON MONTEITH, Stratford, Ont.
<i>Vice-President</i>	H. K. REVELL, Goderich, Ont.
<i>Secretary</i>	C. A. ZAVITZ, Agricultural College, Guelph.
<i>Assistant Secretary</i>	W. J. SQUIRRELL, Agricultural College, Guelph.
<i>Treasurer</i>	A. W. MASON, Agricultural College, Guelph.
<i>Directors</i>	DR. G. C. CREELMAN, J. B. SPENCER, H. NIXON, C. M. LAIDLAW, A. F. HANSULD.
<i>Auditors</i>	R. R. GRAHAM and S. H. GANDIER.

COMMITTEES ON CO-OPERATIVE EXPERIMENTAL WORK.

<i>Agriculture</i>	C. A. ZAVITZ (Director), W. J. SQUIRRELL, A. W. MASON, C. R. KLINCK and A. E. WHITESIDE.
<i>Agricultural Botany</i>	J. E. HOWITT (Director), T. G. RAYNOR, W. J. W. LENNOX and R. AITON.
<i>Forestry</i>	E. J. ZAVITZ (Director), A. H. TOMLINSON and H. A. DORBANCE.
<i>Agricultural Chemistry</i>	R. HARCOURT (Director), J. W. CROW and A. L. GIBSON.
<i>Apiculture</i>	F. E. MILLEN (Director), S. A. STEWART and R. E. BARBER.
<i>Farm Literature</i>	O. J. STEVENSON (Director), R. R. GRAHAM and W. L. IVESON.

TREASURER'S REPORT, 1918

RECEIPTS.		EXPENDITURES.	
Balance from last year	\$2,009 34	Agricultural experiments ...	\$2,327 42
Government grant	2,750 00	Botanical experiments	37 50
Membership fees, 242 at 50c.	121 00	Expenses, annual meeting, 1918	93 45
Interest	70 11	Meeting of Executive	10 40
	<hr/>	Printing, postage, etc., annual meeting, 1919	158 20
	\$4,950 45		<hr/>
		Total	\$2,626 97
		Balance on hand	2,323 48
			<hr/>
			\$4,950 45

Ontario Agricultural and Experimental Union

ANNUAL MEETING

The fortieth annual meeting of the Ontario Agricultural and Experimental Union was held at the Ontario Agricultural College, Guelph, on Tuesday and Wednesday, January 14th and 15th, 1919. On Tuesday evening a banquet was held in the New Dining Hall at the college when about five hundred officers, ex-students and students were seated at the tables. Dr. Creelman, President of the College, acted as Chairman and was the principal speaker of the evening. On Tuesday three sessions, and on Wednesday three sessions of the Experimental Union meeting were held. All the day sessions convened in Massey Building. Most of the sessions were crowded beyond the seating capacity of the hall. The reports and addresses which were presented, and the most important discussions which took place during the different sessions of the Experimental Union meeting, are embodied in this report.

SECRETARY'S REPORT.

DR. C. A. ZAVITZ, PROFESSOR OF FIELD HUSBANDRY, O.A.C., GUELPH.

This is the fortieth anniversary of the Ontario Agricultural and Experimental Union. For the first few years of the Experimental Union, the work was confined largely to the meeting in which the ex-students, students and officers met to discuss questions relating to agriculture. The present system of co-operative experimental work was not started until 1886 when there were twelve experimenters who conducted work on their home farms. The following year there were sixty and the next year ninety-three. The co-operative experimental work has branched out in different directions and has included several branches of agriculture. It has included as experimenters not only those who have been directly associated with the Agricultural College but thousands of other practical farmers located in different parts of the Province.

The co-operative work in agriculture has been conducted for thirty-three years during which time there have been 92,235 distinct tests made throughout the Province. Each of these experiments consisted of from two to ten plots. The increase in the number of experimenters in agriculture can be seen from the following figures which show the average yearly number actually engaged in the work in each of three eleven-year periods, covering thirty-three years during which time this work has been in progress:

Periods	Years	Average number of Experimenters per annum
1886-1896.....	11	720
1897-1907.....	11	3,386
1908-1918.....	11	4,288

In spite of the great scarcity of labor, farmers to the number of 3,631 conducted co-operative experiments on their own farms in the past year.

Since our last annual meeting, co-operative experiments have been conducted throughout Ontario with varieties of farm crops, quantities of seed per acre, mixed grains for hay production and for fodder, the application of commercial fertilizers, the eradication of weeds, the study of soil requirements, etc.

Within the past year two meetings of the Board of Control of the Experimental Union have taken place, one in January and one in September.

A part of the Annual Report including results of co-operative experiments with farm crops, sources of seed, and production of food materials was published immediately after the Annual Meeting as Bulletin No. 260. This was issued in order that the information might reach the farmers before seeding time in the spring. At a later date the remainder of the thirty-ninth annual report was published. Each of these were printed and distributed by the Department of Agriculture, Parliament Buildings, Toronto, from which address additional copies may be obtained.

We are again pleased to express our appreciation of the deep interest taken in the results of the Experimental Union by the agricultural journals and by the agricultural departments of some of the weekly papers in Ontario. The reports which they print give information to a very large number of people who in this way are directly benefited from the work conducted throughout the Province.

Even during the four years of the war when labor has been so scarce, the number of farmers who have carried on the work has not dropped below three thousand in any one year. This shows the deep desire of the farmers for practical information obtained in this unique way. It is quite probable that the work will be considerably increased as many of the farmers' sons return from overseas to their farm homes. We believe that this work will steadily increase and will continue to form an important factor in the development of a progressive agriculture in this Province.

PRESIDENT'S ADDRESS.

HARVEY B. WEBSTER, ST. MARY'S.

It gives me great pleasure to welcome you to the fortieth annual meeting of the Experimental Union. We are meeting this year under especially happy auspices, as the shadows caused by the great world war have passed away, and the dove of Peace has again returned to our midst. Many of our members have been on active service, and we welcome their return, though some will not come back to us, having made the supreme sacrifice. To all who are bereaved, we extend our sincerest sympathy.

Many and important are the problems that confront us as agriculturists at the present time, and press for solution. We would not be living up to the best traditions of our noble calling as farmers, and members of the Experimental Union, if we did not take note of conditions as we know them to be, and with broad minds, trained to fine perceptions through experimental work, focus our attention on these vital problems, and solve them in the national interest, proving all things even as we have been adjured to do all down through the ages.

We might first note some facts pertaining to the work of the past season. The weather conditions throughout the year have been unusually favorable for the prosecution of farm work, and Ontario farmers, by dint of application and persever-

ance, and by the general use of the most improved varieties of grain have again gone "over the top" and have produced, with the exception of winter wheat, crops that for yield and quality of grain, have never been equalled. Great praise is due the farmers for their work this past year.

We would not be fair if we did not give due recognition to the part played by the farm women. Due to acute labor shortage, they were obliged to undertake work to which they were not accustomed, and they responded nobly to the call. We must also appreciate the assistance lent by the boys and girls of our schools, as well as that of the city women who volunteered for farm work. The signal success which has attended women's efforts has, we are pleased to say, been such that the doors of the O.A.C. have been opened to receive them.

Let us first endeavor to solve the problem of how we must meet our indebtedness abroad, and maintain our credit. It is only by productive work, and by selling abroad those products which are required by other countries, thus developing our export trade. There are two chief classes of exports, the products of the factory, and of the farm. During the past fiscal year the factories supplied exports totalling \$636,602,000 made up chiefly of munitions, the raw material for which was largely imported, while the agricultural and animal products amounted to \$740,456,000, proving that Canada's farm lands are her chief national asset. The development of our basic industries should be our first national undertaking, to see that our wealth of natural resources of lake, forest, field and mine contribute to our national finances. It will probably be some time before our exports of manufactured goods will attain much volume, hence it is of more importance that our revenue-producing industries should be encouraged.

The mineral deposits of our land are of unknown richness, the forests lend themselves to the production of building material and pulpwood, and as yet only a small proportion of the arable lands of the Dominion are under cultivation. There is no doubt about the capacity of Canada's agricultural and grazing land to produce grain and livestock, to compete in the open markets of the world, with similar products from any other country. Canadian produce has already won an enviable reputation on the world's markets, and when given free range, without restriction of markets, or the handicaps of unequal economic conditions, Canadian Agriculture will continue to be, as now, the principal sustaining factor in the country's trade.

How is agriculture to be developed? First of all, by the return of labor to the land. For many years the lure of the city has drained the rural districts of the best of its young blood, and the call to arms has further depleted the already diminished supply of available help. Now that the war is over, the situation in this regard will be improved. Those who have been producing munitions, and who have had previous farm training may, now that the industrial life is in a period of transition from a war to a peace basis, be constrained to return to the land. They will be welcome for the land is crying for their help.

The returned soldier should be an important factor in increased production. With the return of over 400,000 men to our shores we trust that a large number of these will establish themselves on the land. The first duty of our Government is to make available suitable land for these soldiers who desire to cultivate it, and we hold that a large number of farms in Old Ontario, now producing but little, would be suitable for this purpose. There are also of course, vast areas of splendid soil in New Ontario, and a great expanse of fertile fields in the Western Provinces, that await but the touch of the human hand to make them productive. We are pleased to note that special courses are being provided at the College, for those

soldiers who wish to take up farm life; and we might note in passing that technical education should be provided in every line to those soldiers who desire it. The brave spirit which was displayed by our soldiers on the fields of battle, has done so much to place Canada in an exalted position in the minds of other countries, that Canada cannot do too much for them in return. We maintain that soldiers returning to the land should receive every possible financial assistance. Capital thus expended would be far more profitable than if used for unproductive public works undertaken to provide employment.

An influential movement is abroad in the rural community to-day, which is destined to elevate farm life, and to educate the farmer to a proper realization of his responsibilities as a citizen. This is the co-operative spirit. By the co-operative purchase of supplies, he is enabled to reduce the cost of production, and by co-operative selling, it is possible for him to secure the full market value of his product. We must learn to sell. We must study markets and the science of marketing, that we may be able to handle our business in the most efficient manner.

We should not close without a word about our Alma Mater, which so many of us love, and the memories of which we cherish so fondly. We point with honest pride to the fact that seven hundred or more of the students and ex-students have given noble service to their country in this her time of testing, and that they have won coveted laurels on the field of battle. We also feel justly proud of the record of the Alumni, many of whom worthily hold high positions in this and other countries. And we would not forget the unique success which has been so lately won by the judging team at Chicago. All honor to the boys and their trainer.

There has, however, been a feeling amongst the students and ex-students of recent years that our grand old College here is not going ahead in the way it should. There is a feeling that more should be done in training our boys for leadership. Also it is felt that our College is not in sympathetic touch with rural needs. The College has done a wonderful and inestimable work in improving rural conditions in the matter of increased production on the farms, but now it is being looked to for leadership and guidance in the solution of social and economic problems. The graduates, as they have gone out into practical life have done much, but a stream can rise no higher than its source. May the appeal not be made in vain, for where there is no vision the people perish.

The return to familiar scenes and the meeting of friendly faces means much to all of us. Why can something not be done to unite by some tangible bond all those who have gone out from these halls by the formation of an Alumni Association? Why not link together all the ex-students of the O.A.C., men who are awakened, who have vision, who have a common interest in matters pertaining to advanced agriculture, men who have a common spirit and wanting to do the best they can, if only out of appreciation for what the grand old College did for them. Cannot some satisfactory basis for organization be arrived at, possibly in connection with the Experimental Union. We suggest that some steps be taken at once, and that the abstract be transformed into the concrete.

Now in conclusion, may we each and all strive to grasp the facts of the situation as they exist at present. Let us not indulge in any vain regrets for the past, or in vainer resolves for the future. Let us act in the present. May our efforts tend toward building up a strong united nation, the foundation of which must be a better agriculture. May our ideals be high and noble, and may we be worthy of the sacrifice of those who have given their lives for us. Let us grasp the torch of liberty and freedom that has been thrown to us, and let us hold

it high, that we disturb not the slumber of those who lie where poppies blow in Flanders' field.

P. S. McLAREN: As the President has said, this is the fortieth anniversary of the Experimental Union. These years have all shown progress, and especially is this noticeable to those of us who can look back over the period from its very commencement. The number of co-operative experiments has increased from year to year and the increased interest in the work has kept pace with its enlargement.

One of the finest features in connection with the Experimental Union is that fine spirit of unity which exists among its members. While this spirit prevails the success of the Union is assured.

I would like to urge all the members here present, both young and old, to take part in the discussions. In this way you will not only make the sessions of greater value for all the members but get the most out of them for yourselves.

H. K. REVELL: I can agree with a good many things the President has said in his address. He struck a timely note when he said "the stream can rise no higher than its source," and it is high time that the business of agriculture is put where it belongs.

The farmers of Ontario are at a period of change very similar to that of the California Fruit Growers which took place some years ago. These farmers found their fruit was being sold for less than the actual cash expenditure to produce it. The fruit growers of Southern California got together at San Francisco in a session which extended over two or three days, and the result was the birth of one of the greatest farmers' organizations on this continent. It is time the farmers of Ontario did something of that sort. I do not want to commit myself on any plan of tariff or of co-operative buying and selling. To my mind there is great opportunity for work in the social life throughout our rural sections, and especially in our rural schools. Prevailing conditions are not likely to encourage improvements. I do not know of any better organization to take this in hand than the Experimental Union.

RESULTS OF CO-OPERATIVE EXPERIMENTS IN AGRICULTURE.

DR. C. A. ZAVITZ, PROFESSOR OF FIELD HUSBANDRY, O.A.C., GUELPH.

The experimental work at the Provincial Institution at Guelph, and on the farms in the various parts of Ontario have a unique correlation through the medium of the Ontario Agricultural College and the Ontario Agricultural and Experimental Union. The farm at the Ontario Agricultural College, Guelph, consists of 717 acres. Of this area, seventy-five acres are used for experiments in farm crops. It is divided into about twenty-five hundred plots from which definite yields are determined annually. In addition to these plots certain areas are devoted to plant breeding work, where many thousands of selected and hybrid plants are studied individually. Experiments are being conducted with varieties of grain, root, tuber, grass, clover, fodder, silage and other crops; with commercial, green and barnyard manures; with methods of cultivation, selection of seed, dates of seeding, mixtures of grains, pasture crops, etc. All experiments are conducted under as nearly average farm conditions as possible in regard to rotation of crops, manuring, cultivation, etc., and are repeated for at least five years before they are dropped and many of them are continued for a much longer time.

The co-operative work of the Experimental Union is based on the work of the field experiments at the Ontario Agricultural College. This co-operative work has been carried out through the medium of the Ontario Agricultural and Experimental Union for a period of thirty-three years, during which time 92,235 separate tests with from two to ten plots each have been conducted.

The committee appointed last year to look after the co-operative experiments in agriculture were as follows: C. A. Zavitz (Director), W. J. Squirrell, A. W. Mason, C. R. Klinck, and A. E. Whiteside. As Director of the committee it is my place to present the summary report of the work of the past year. We had in all thirty-eight distinct and separate tests, six being with autumn and thirty-two with spring sown crops. To furnish definite information and an outline of the work, a copy of the lists of experiments which were forwarded to ex-students and other farmers is here presented.

WINTER CROPS, 1917-1918.

Material for any one of the six experiments here mentioned will be sent free to any Ontario farmer applying for it, if he will conduct an experiment with great care and report the results after harvest next year. The seed will be sent out in the order in which applications are received as long as the supply lasts.

	Plots
1. Testing three leading varieties of Winter Wheat	3
2. Testing one leading variety of Winter Rye and one of Winter Wheat	2
3. Testing spring applications of five fertilizers with Winter Wheat	6
4. Testing autumn and spring applications of Nitrate of Soda and Common Salt with Winter Wheat	5
5. Testing Winter Emmer and Winter Barley	2
6. Testing Hairy Vetches and Winter Rye as fodder crops	2

The exact size of each plot is to be one rod wide by two rods long. The material for experiments Nos. 1, 2, 3, 5 and 6 will be forwarded by mail, and for the other one by express. Each person wishing to conduct one of these experiments should apply as soon as possible, mentioning which test he desires, and the material, with instructions for testing and the blank form on which to report, will be furnished free of cost until the supply of experimental material is exhausted.

SPRING CROPS, 1918.

The members of the Ontario Agricultural and Experimental Union are pleased to state that for 1918 they are prepared to distribute into every township in Ontario, material for experiments with fodder crops, roots, grains, grasses, clovers and fertilizers. Fully 2,500 varieties of farm crops have been tested in the Experimental Department of the Ontario Agricultural College, Guelph, for at least five years. These consist of nearly all the Canadian sorts, and several hundred new varieties and new strains, a few of which have done exceedingly well in the carefully conducted experiments at the College, and will be used for the co-operative experiments throughout Ontario in 1918.

Each person in Ontario who wishes to join in the work may choose any one of the experiments for 1918, fill out the accompanying form of application, and return the same to the Director of the Co-operative Experiments in Agriculture at as early a date as possible. The material will be furnished in the order in which the applications are received, until the supply is exhausted. A sheet containing the instructions for conducting the chosen experiment, and the blank form

on which to report the results of the work, will be sent to each experimenter at the time the fertilizers or seeds are forwarded. All material will be furnished entirely free of charge to each applicant, and the produce of the plots will, of course, become the property of the person who conducts the experiment. In return, the Committee on Agricultural Experiments desires to ask that each experimenter will sow all the plots belonging to the particular experiment which he has chosen for 1918, and that he will be very careful and accurate in his work, and forward to the Director a complete report of the results obtained from the test, as soon as possible after the plots are harvested.

All seeds and fertilizers will be sent in good time for spring seeding, providing the applications are received at an early date. The supply of material being limited, those who apply first will be surest of obtaining the desired outfit. Each applicant should make a second choice, for fear the first could not be granted. The experiment selected should be indicated by using its number as given in the left hand column in the list of experiments. Further information is given on the application form which is attached.

LIST OF EXPERIMENTS FOR 1918.

GRAIN CROPS.

	Plots
1. Testing two varieties of Oats	2
2. Testing O. A. C. No. 21 Barley and Emmer	2
3. Testing two varieties of Hulless Barley	2
4. Testing two varieties of Spring Wheat	2
5. Testing two varieties of Buckwheat	2
6. Testing three varieties of Field Peas	3
7. Testing two varieties of Spring Rye	2
8. Testing three varieties of Soy, Soja, or Japanese Beans	3
9a. Testing seven varieties of Flint and Dent Husking Corn	7
9b. Testing three varieties of Flint Husking Corn	3
9c. Testing four varieties of Dent Husking Corn	4

ROOT CROPS.

10. Testing three varieties of Mangels	3
11. Testing two varieties of Sugar Beets for feeding purposes	2
12. Testing three varieties of Swedish Turnips	3
13. Testing two varieties of Fall Turnips	2
14. Testing two varieties of Carrots	2

FORAGE, FODDER, SILAGE AND HAY CROPS.

15. Testing the planting of Corn at six distances in the row	6
16. Testing three varieties of Millet	3
17. Testing two varieties of Sorghum	2
18. Testing Grass Peas and two varieties of Vetches	3
19. Testing Rape, Kale and Field Cabbage	3
20. Testing three varieties of Clover	3
21. Testing two varieties of Alfalfa	2
22. Testing four varieties of Grasses	4

CULINARY CROPS.

23. Testing three varieties of Field Beans	3
24. Testing two varieties of Sweet Corn	2

FERTILIZER EXPERIMENTS.

25. Testing fertilizers with Rape	5
26. Testing fertilizers with Mangels	10

MISCELLANEOUS EXPERIMENTS.

	Plots
27. Testing Northern and Southern Grown Seed Potatoes	2
28. Testing two varieties of Potatoes	2
29. Testing three grain mixtures for Grain production	3
30. Testing three grain mixtures for Fodder production	3

The size of each plot in each of the first twenty-six experiments and in Nos. 29 and 30, is to be two rods long by one rod wide; in Nos. 27 and 28, one rod square.

If you wish to conduct one of the thirty agricultural experiments named on the accompanying circular, kindly fill out this blank form and return it as soon as possible.

The distribution will be confined to the choice varieties included in the various experiments. In filling out the blank form, therefore, it is neither necessary nor advisable to mention any particular variety or varieties.

Materials for experiments numbered 25 and 26 will be sent by express and that for each of the others by mail.

APPLICATION FOR MATERIAL FOR AN EXPERIMENT.

I would like to conduct experiment number, but if all the material for that experiment has been applied for before my application is received I select experiment number as my second choice. If the material for one of these experiments is forwarded to me, I will endeavor to

1. Carry on the test according to the instructions received with the seed.
2. Exercise care and accuracy in the work, and
3. Report the result of the experiment as soon as possible after harvest, whether successful or not.

The past four years have been abnormal for crop production as will be seen from the following table which gives the average rainfall for the last four years in comparison with the fifteen years previous for each of the six months from April to September inclusive, as determined by the Department of Physics at the Ontario Agricultural College:

Period	April	May	June	July	August	September	Total
	inches	inches	inches	inches	inches	inches	inches
1900-1914 (15 years)	2.22	2.73	2.39	3.40	2.74	2.32	15.82
1915-1918 (4 years)	2.88	3.54	4.42	4.02	4.08	2.81	21.74

The average rainfall for the six growing months of the past four years has been about one-third greater than that of the fifteen years previous.

The following gives the amount of rainfall in each of the six growing months in each of the past four years:

INCHES OF PRECIPITATION DURING THE SIX GROWING MONTHS

Year	April	May	June	July	August	September	Total
	inches	inches	inches	inches	inches	inches	inches
1915.....	2.23	2.24	2.27	5.87	6.16	3.92	22.69
1916.....	3.53	4.41	4.46	1.21	1.68	1.83	17.12
1917.....	3.36	3.29	6.40	7.54	3.28	1.41	25.28
1918.....	2.38	4.22	4.56	1.47	5.18	4.06	21.87

From these results it will be seen that the rainfall of the past summer has been exceptionally heavy at the Ontario Agricultural College. In comparison with these results, the rainfall over Ontario was somewhat lighter in April, May, and June and was heavier in July.

It is interesting to note that the co-operative work of the Experimental Union is entirely voluntary. The work is conducted by the farmers themselves through the help, co-operation, and guidance of the Experimental Union. The fact that the work is voluntary is probably one of the greatest reasons for its development and for its success.

As in former years the reports of the co-operative experiments for 1918 which were received at the College were submitted to a very critical examination. For the summary report which is presented at this time, only those reports which showed carefulness and reliability in all essential features were used. All reports whether successful or not are here presented and their inspection is invited by any of the audience who wish to examine them. Many of these reports have been furnished by men who have had a large amount of practical experience on the farm, have had the advantage of a good education, and have had a careful training in experimental work as they have conducted successful tests on their own farms in each of a number of years. Only the good reports of carefully conducted experiments have been used for publication, but many of those not included in the summary report show that the individual experimenters must have obtained a considerable amount of valuable information from their work, and in each of a number of cases a start with choice seed has been made of varieties particularly suited to their local conditions. Accidents sometimes occur in connection with experimental work and in some instances, experimenters are unable to use the prescribed size of plots. These tests may have furnished local information but the results are not included in the summary. It is certainly true that experimenters obtain much information from the tests which they conduct in addition to that included in the summary report, such as the one here submitted.

Each experimenter who received instructions for conducting the co-operative work was asked to give his decision on the relative standing of the different varieties, fertilizers, manures, mixtures of grain, quantities of seed per acre, etc., after everything had been taken into consideration. The report here presented includes a summary of the answers to this inquiry and is presented in the tabulated results, under the heading of "Comparative Value."

VARIETIES OF GRAIN CROPS.

The estimated value of the field crops of Ontario for 1917 amounted to \$333,353,438 and that for the average of the past thirty-six years to \$142,021,595. The estimated value of the grain crops alone for 1917, according to the Ontario Bureau of Industries, are as follows:

Crops	Estimated Value
	\$
Oats.....	86,640,057
Fall Wheat	28,078,738
Barley.....	23,118,166
Mixed Grains.....	20,876,501
Corn for Husking.....	14,278,407
Spring Wheat	7,716,693
Field Beans.....	7,446,626
Field Peas.....	4,855,888
Buckwheat.....	4,278,256
Rye	3,614,591
Total.....	200,903,923

It will be seen that the grain crops are about sixty per cent. of the value of all the field crops of the Province, and that the value of the oats is about forty-three per cent. of that of the grain crops.

Hundreds of named varieties of grains have been carefully tested at the Ontario Agricultural College for five years or more. The number of varieties distributed for co-operative work is very small as only those are used which have been thoroughly tested for a series of years in the trial grounds at the College and which have made high records. There are far too many varieties of some of the classes of farm crops grown in Ontario. Many of them are brought into the country by agents, and are frequently purchased by farmers who are attracted by means of beautiful illustrations and by extravagant advertisements. They are sold at comparatively high prices and, in some cases, are old varieties under new names and some are new varieties which are not as good as those which are already grown in general cultivation and which have proven themselves to be varieties of high merit. It is the aim of the Experimental Union to furnish the highest quality of seed of a few of the best varieties in order that the farmers may increase crop production in the most economical way and at the same time glean valuable information through the medium of their experimental work. Farmers who pay high prices for high priced untested varieties which afterwards prove a comparative failure have only themselves to blame. The Agricultural College and the Experimental Union conduct experimental work with those classes of crops which are now used on fully ninety per cent. of the cultivated land of the Province. Some of the varieties which are now being extensively used in cultivation are those which were introduced by or originated at the College, and, after proving worthy, were distributed and used for the co-operative experimental work on different farms throughout the Province. Some varieties do particularly well over nearly the whole of the Province, while others do the best on certain soils and under special conditions. Some of the varieties which have been introduced into the farm practice of Ontario through the College and the Union and which deserve particular attention are as follows:—Mandscheuri and O.A.C. No. 21 varieties of barley; O.A.C. No. 72 and O.A.C. No. 3 oats; Dawson's Golden Chaff and O.A.C. No. 104 winter wheat; Petkus winter rye; O.A.C. No. 61 spring rye; Common emmer; Rye buckwheat; Early Britain and Canadian Beauty peas; Pearce's Improved Tree beans; Hairy vetches; Golden Bantam sweet corn, White Cap Yellow Dent, Wisconsin No. 7 white dent and Salzer's North Dakota white flint corn; Early Amber sugar cane; Ontario Variegated and Grimm alfalfa; Yellow Leviathan mangels; Green Mountain, Empire State, Davies' Warrior and Irish Cobbler potatoes. These varieties are becoming favorites throughout the Province.

The following gives the summary results in tabulated form of the different varieties of grain crops tested throughout Ontario in 1918 and are worthy of careful study:

Experiments	Varieties	Comparative Value	Yield per Acre		
			Straw	Grain	Grain
			tons	bus.	lbs.
Oats (31 tests)....	O.A.C. No. 72	100	1.80	54.19	1,842
	O.A.C. No. 3	73	1.46	46.14	1,569
Six-rowed Barley & Emmer (11 tests)	O.A.C. No. 21	100	1.34	44.53	2,138
	Common Emmer	58	1.33	32.62	1,566
Hulless Barley (13 tests).....	Black Hulless	96	1.59	26.67	1,600
	Guy Mayle.....	100	1.55	25.51	1,530
Spring Wheat (25 tests).....	Marquis	100	1.47	23.11	1,386
	Wild Goose	96	1.65	22.91	1,374
	O.A.C. No. 104.....	100	1.55	25.52	1,531
	Improved Dawson's Golden Chaff....	80	1.52	25.33	1,520
Winter Wheat (14 tests).....	Improved Imperial Amber	63	1.77	23.01	1,381
	Yaroslaf	43	1.70	21.46	1,288
	Kharkov.....	33	1.52	19.22	1,153
	O.A.C. No. 61	100	1.88	20.47	1,146
Spring Rye (3 tests)	Common.....	89	1.84	20.00	1,120
	Petkus Winter Rye	100	2.38	36.07	2,020
Winter Rye and W. Wheat (4 tests).	Imperial Amber Winter Wheat.....	73	1.63	19.28	1,157
	Rye	100	2.20	37.78	1,814
Buckwheat (3 tests)	Silver Hull	67	2.07	28.05	1,346
	Early Britain.....	100	1.19	28.75	1,725
Field Peas(68 tests)	Potter	90	1.32	25.67	1,540
	Canadian Beauty.....	95	1.35	25.12	1,507
Field Beans (14 tests).....	Pearce's Improved Tree	100	.89	19.19	1,151
	White Wonder	88	.73	15.61	937
	Elliott's Pea.....	69	.75	15.29	918
	Habara.....	96	1.04	11.57	694
Soy or Soja Beans (2 tests).....	O.A.C. No. 81	100	.99	11.52	691
	Brown	86	.78	8.45	507

In the third column of the tabulated results of the grain crops here given, attention is called to the fact that the comparative value was made up from the answers received from the farmers who conducted the experiments after they had taken everything into consideration. In the fourth column, yield of straw per acre represents the total crop less the amount of grain and, therefore, includes the chaff with the straw. The yield of grain is given in pounds as well as in bushels per acre in order to make the results clearly understood, and that certain comparisons may be made between the different classes of crops as well as between the varieties of each class in a season such as we had in 1918. Definite determinations can be made between the varieties of each class of farm crops as they were grown on the same farm and under similar conditions. Caution, however, should be exercised in comparing one class of farm crops with another as it should be understood that these have been grown on different farms. In cases where there are a considerable number of tests of each class, however, certain comparisons might be made regarding the yields of different classes. Owing to the great variation in the weight per measured bushel of different classes of crops it is easier to compare the weight in pounds than in bushels of grain per acre. In working out the number of bushels per acre, the standard weights per measured bushel have been used for each class of crop.

Varieties of Oats. The oat crop of Ontario amounted in value to about \$100,000,000 in the past year. It is decidedly the most important of the grain

crops of Ontario, being about equal to the combined values of wheat, barley, rye and buckwheat.

Three hundred named varieties of oats have been tested under uniform conditions at the Ontario Agricultural College within the past twenty-five years. Many of these, after five years' tests, have been dropped from the list owing to undesirable characteristics. The choice varieties have been tested from year to year until a few have now been under continuous cultivation each year for more than a quarter of a century. The varieties of oats tested include not only those obtained from Ontario but a number of leading kinds which have been imported from other countries which possess climatic conditions somewhat similar to those of this Province. Efforts have been made to improve the best varieties by plant selection and by hybridization. There are still too many varieties of oats grown in Ontario, but the Province is rapidly focusing on a few of the best kinds, regarding which attention will be directed in this report. It has been the aim of the Agricultural College and of the Experimental Union to eliminate as many of the varieties as possible and to concentrate on a few of the very best. It now looks as if the O.A.C. No. 72 variety of oats which requires the same length of time to mature as the Banner will soon supplant practically all of the varieties of late oats in the Province.

Only four years ago 68 per cent. of the oats grown in Ontario was of the Banner variety according to reports received from farmers in answer to an enquiry. In that year the O.A.C. No. 72 variety was not mentioned as being the most extensively grown in any one county. In 1918, however, as the result of a similar enquiry, it has been found that about 47 per cent. of the Banner, 30 per cent. of the O.A.C. No. 72 and 23 per cent. of all other varieties combined were grown in the Province.

The following gives the average yield of grain per acre per annum, etc., of a few prominent varieties for a period of twelve years:

Varieties	Days to Mature	Percentage of Hull	Yield per Acre	
			Straw	Grain
Banner	111	30.0	tons 2.03	bus. 75.6
O.A.C. No. 72.....	111	28.0	2.15	88.1
Daubeney	104	24.9	1.86	76.5
O.A.C. No. 3.....	102	24.0	1.89	86.0

These results conducted at the Agricultural College show that the O.A.C. No. 72 variety is a strong vigorous grower, producing a heavy yield of both grain and straw, and that the grain is of excellent quality for a late variety. Other varieties of late oats, such as the Tartar King, the Storm King and the Egyptian usually have from 35 to 36 per cent. of hull. The O.A.C. No. 72 is one of the thinnest hulled of the late varieties of oats grown in the Province.

The following table gives the average yield per acre of the two varieties of oats used for the co-operative experiments in each of the past six years, also the average results of the 584 successfully conducted tests of these two varieties throughout the Province, in the six-year period:

Varieties	Average Yield of Oats per Acre (Bus. by weight)						
	1913 187 tests	1914 141 tests	1915 126 tests	1916 46 tests	1917 53 tests	1918 31 tests	Ave. 6 yrs. 584 tests
O.A.C. No. 72.....	52.1	52.4	52.9	47.0	45.9	54.2	50.8
O. A. C. No. 3	43.3	49.0	49.1	45.6	41.2	46.1	45.7

In the co-operative experiments throughout Ontario, each farmer is asked to sow one plot with his own seed of the best variety of oats of which he has a supply of seed. In the co-operative tests in 1918 the O.A.C. No. 72 gave a higher average yield per acre than the Banner or the other varieties of oats used in this comparative test with home grown seed.

O.A.C. No. 21 Barley and Common Emmer. In each of six years we have distributed throughout Ontario for co-operative experiments the O.A.C. No. 21 barley and the Common emmer in order to test under uniform conditions these two crops. We had previously found that emmer was a close rival of barley in yield of grain per acre. The following gives the average results of the co-operative experiments in each of the past six years:

Varieties	Average Yield in Pounds of Grain per Acre						
	1913 28 tests	1914 18 tests	1915 23 tests	1916 4 tests	1917 20 tests	1918 11 tests	Ave. 6 yrs. 104 tests
O.A.C. No. 21 Barley	1613	1714	2022	1220	1794	2138	1750
Common Emmer	1191	1359	1673	1080	1705	1566	1429

It will be seen that in each of the past six years the O.A.C. No. 21 barley surpassed in yield per acre the Common emmer throughout the Province.

Emmer is a species of spring wheat in which there is not a clear separation of the chaff and the grain in threshing. The grain which is still surrounded by the chaff is usually ground into meal and fed to farm stock, and has about the same feeding value as barley. On the average, barley has about 15, emmer, 20, and oats 30 per cent. of hull.

Hulless Barley. Only a limited amount of Hulless barley is grown in Ontario, although on some farms it occupies a fairly prominent place. Fifteen different varieties of Hulless barley have been under test at the Agricultural College. Most of the varieties have proven to be rather weak in the straw and have given unsatisfactory results. In each of the past fifteen years we have distributed the Guy Mayle and the Black Hulless varieties for co-operative tests. In the fifteen-year period, 192 separate tests were successfully conducted throughout the Province varying in number from 6 to 31 per year. In the average of the 192 tests conducted in the fifteen-year period it was found that the Guy Mayle gave 2,267 pounds and the Black Hulless 2,211 pounds per acre. Over the whole period, therefore, the Guy Mayle gave an annual increase of 56 pounds of grain per acre over the Black Hulless. In 1918, however, the Black Hulless surpassed the Guy Mayle by a little over 100 pounds of grain per acre. The Guy Mayle variety has rather stiffer straw and is one of the very best Hulless barleys which has been under test at the College.

Spring Wheat. There has been increased interest in spring wheat growing in Ontario since the beginning of the war and this is particularly true for the past year. According to the Ontario Bureau of Industries there were 351,423 acres of spring wheat grown in 1918 and only 118,607 acres in 1914, the year in which the war started. As there is still a large demand for wheat, and as the spring wheat did exceptionally well throughout Ontario in the past season, it is quite probable there will be a large acreage of spring wheat grown in Ontario in 1919.

In each of the past six years the Marquis and the Wild Goose varieties have been distributed over Ontario for co-operative experiments. The average results in yield of bushels of grain per acre for each of the past six years are as follows:

Varieties	Average Yield of Grain per Acre (Bus. 60 pounds)						
	1913	1914	1915	1916	1917	1918	Ave. 6
	16 tests	13 tests	24 tests	9 tests	24 tests	25 tests	yrs. 111 tests
Wild Goose	20.3	19.1	20.3	20.4	20.8	22.9	20.6
Marquis	20.8	17.8	19.1	17.2	20.1	23.1	19.7

It will be seen that in the last six years the highest average yield was produced by the Wild Goose in four and the Marquis in two years. The Marquis is a wheat of good quality, being particularly well suited for bread production, while the Wild Goose is a coarse Durum wheat more suitable for the manufacture of macaroni than of bread.

Winter Wheat. According to enquiries made from farmers this autumn in regard to the most extensively grown varieties of winter wheat in the different counties, 71 per cent. mentioned Dawson's Golden Chaff, 10 per cent. Winter King, and 19 per cent. other varieties. The Dawson's Golden Chaff has been a very popular wheat throughout Ontario for a number of years. It is stiff in the straw and a heavy yielder of grain.

In order to improve the Dawson's Golden Chaff, especially in quality of grain, crosses were made between the Dawson's Golden Chaff and the Bulgarian varieties at the Ontario Agricultural College. These crosses have been carefully selected and tested for a number of years past. One hybrid known as the O.A.C. No. 104 has given particularly good results both at the College and throughout Ontario. The following gives the average results of the O.A.C. No. 104 in comparison with each of its parents for a period of eight years, at the College:

Varieties	Average of Eight Years' results		
	Weight per Measured Bushel	Yield per Acre	
		Straw	Grain
	pounds	tons	bushels
O.A.C. No. 104	60.1	2.64	45.7
Dawson's Golden Chaff.....	58.4	2.29	42.4
Bulgarian	59.3	2.37	36.6

The winter of 1917-18 was exceptionally hard on winter wheat, and according to the reports issued by the Government 56 per cent. of the winter wheat of

Ontario was ploughed down last spring. In the experiments at the College, the O.A.C. No. 104 proved to be more hardy in each of two separate experiments than either the Dawson's Golden Chaff or the Bulgarian.

Five varieties of winter wheat have been distributed in each of the past two years for co-operative experiments. The following table gives the average yield of grain per acre of these co-operative tests with the five varieties of wheat:

Varieties	Yield of Grain per Acre (bus. by weight)		
	1917 25 tests	1918 14 tests	Ave. 2 years 39 tests
O.A.C. No. 104.....	23.7	25.5	24.6
Dawson's Golden Chaff.....	21.5	25.3	23.4
Imperial Amber	22.9	23.0	23.0
Yaroslaf	17.6	21.5	19.6
Kharkov	19.3	19.2	19.3

It will be seen that the new hybrid wheat has given good all round results both in the College tests and in the co-operative experiments. The O.A.C. No. 104 is a white wheat with a white chaff and a beardless head. It is a vigorous grower, stiff in the straw and produces a grain which is rather superior to that of the Dawson's Golden Chaff for bread production. We believe that this wheat will prove of great service to the farmers of Ontario.

Spring Rye. For eight years in succession two varieties of spring rye have been distributed over Ontario for co-operative experiments. The average yield in bushels of grain per acre covering this period is as follows:

Varieties	Average Yield of Grain per Acre (bus. by weight)								
	1911 7 tests	1912 3 tests	1913 7 tests	1914 4 tests	1915 2 tests	1916 2 tests	1917 5 tests	1918 3 tests	Ave. 8 yrs. 33 tests
O.A.C. No. 61.....	17.9	26.8	20.0	25.4	18.2	42.1	22.5	20.5	24.2
Common	16.3	24.5	15.9	25.0	12.5	36.4	20.4	20.0	21.4

It will be seen that in every one of the eight years the O.A.C. No. 61 has surpassed the Common variety of spring rye, the average of the former being slightly over 24 bushels per acre per annum.

In the experiments at the College the O.A.C. No. 61 variety of spring rye has headed the list in yield per acre of the four varieties in the average results for eleven years, surpassing the Common variety by 3.8 bushels per acre per annum.

Winter Rye and Winter Wheat. In each of four years the Petkus winter rye and the Imperial Amber winter wheat were distributed for co-operative tests. In 1917, however, there were no good reports of successfully conducted experiments.

The average results in pounds of grain per acre are, therefore, given for each of three years as follows:

Varieties	Average Yield of Grain in Pounds per Acre			
	1915 5 tests	1916 7 tests	1918 4 tests	Average 3 years 16 tests
Petkus Winter Rye.....	2700	1777	2020	2166
Imperial Amber Winter Wheat...	2320	1457	1157	1645

It will be seen that the Petkus winter rye has given a greater yield of grain per acre than the Imperial Amber winter wheat in each of the past four years. The results are most marked in 1918 undoubtedly due to the severe weather conditions which killed a larger percentage of the winter wheat than it did of the winter rye. We have found in experiments both at the College and throughout Ontario that winter rye is more hardy than winter wheat.

Buckwheat. Nearly one-quarter of a million acres of buckwheat were grown in Ontario in 1918. The results of four varieties of buckwheat grown under test at the College in each of thirteen years show the Rye or Rough to give over 30 bushels and the next highest yielding variety less than 22 bushels per acre per annum.

Two varieties of buckwheat have been successfully tested in a co-operative way over Ontario in each of six years. The following gives the average results for 1918 and also for the six-year period:

Varieties	Average Yield of Grain per Acre (bus. by weight)	
	1918 3 tests	Average 6 years 20 tests
Rye Buckwheat.....	37.78	27.24
Silver Hull Buckwheat.....	28.05	21.48

The Rye buckwheat is extensively grown in the Province of New Brunswick but is produced only to a limited extent in Ontario. The grain is rather rough, the hull somewhat thick, and the flour has a yellowish cast. The yield per acre, however, is uniformly high.

Field Peas. The area used for the production of field peas in Ontario in 1918 surpassed that of 1917 by over 23,000 acres. Peas were grown quite extensively in Ontario some years ago and the interest seems to be again reviving in connection with this important crop.

Three varieties of peas have been used in connection with the co-operative experiments throughout Ontario in each of the past three years and the following gives the average results in yield of grain per acre:

Varieties	Average Yield of Grain per Acre (bus. by weight)			
	1916 29 tests	1917 53 tests	1918 68 tests	Average 3 yrs. 150 tests
Early Britain.....	20.8	21.8	28.8	23.8
Potter.....	22.5	21.4	25.7	23.2
Canadian Beauty.....	22.3	21.2	25.1	22.9

These are all good yielding varieties of peas. The Early Britain variety has a brown dented grain, the interior of which has a rich yellowish appearance. Both the Potter and the Canadian Beauty peas are white in color and smooth on the surface.

Field Beans. There were practically 100,000 acres of field beans in Ontario in 1918. In connection with the co-operative experiments three varieties were used. The Pearce's Improved Tree bean which headed the list in average yield per acre of fourteen tests, is a large, white, smooth bean of excellent quality. Unfortunately, it is slightly later in maturing than either the White Wonder or the Pea bean. The Pearce's Improved Tree bean has been used in the co-operative experiments in each of the past six years. In comparison with the Common Pea bean for the four years previous to 1917, the former gave 25.4 and the latter 23.5 bushels per acre. In 1917, the Pearce's Improved Tree bean surpassed the Elliott strain of Pea bean by an average of about one bushel per acre, and in 1918 by an average of nearly four bushels per acre.

Soy Beans. The past three years have been particularly unfavorable for the production of Soy beans in Ontario. Two varieties were distributed for co-operative experiments each year but owing to abnormal weather conditions no satisfactory reports were received in either 1916 or in 1917. In the past year the results were very meagre as only two satisfactory reports were received, the highest variety being the Habara with 11.6 and the next, the O.A.C. No. 81 with 11.5 bushels per acre.

GRAINS GROWN IN COMBINATION FOR GRAIN AND FOR FODDER.

For a number of years in succession experimental work has been conducted at the College in testing various combinations of grain for green fodder, for hay and for grain production. The results of these experiments have been both interesting and important and have been reported from time to time in the College publications. It was found that a combination of varieties of the same class of grain gave no appreciable advantage in increase in yield per acre. It was also found that certain combinations of different classes of grain gave practically no advantage while others furnished considerable increase. One of the most important results obtained was from a combination of oats and barley grown in the proper proportions of the right varieties which gave a yield of slightly over two hundred pounds of grain per acre above either grain grown separately in the tests which were conducted over a series of years.

Based on the information of the experiments at the College, co-operative tests were arranged in which different combinations were tested throughout the Province. In an experiment which was conducted for five years, and which was completed in 1909, different varieties of oats, barley and spring wheat were grown in combi-

nation of two and three kinds of grain together. The average results of the five years' co-operative experiments show that one bushel of the Daubeney oats and one bushel of the Mandscheuri barley gave a higher yield of grain per acre than any of the other mixtures used in the experiment.

In 1910 a co-operative experiment was started for the testing of three different proportions of oats and barley in order to find out which one would give the highest yields on the average and on the different soils throughout the Province. In the results of this experiment for seven years the following average yields in pounds of grain per acre per annum were obtained: 1 bushel oats and 1 bushel barley, 1,691; 1½ bushels oats and 1½ bushels barley, 1,665; and ½ bushel oats and ½ bushel barley, 1,357. It will be seen that one bushel of oats and one bushel of barley, making a combination of two bushels per acre, gave on the average a greater yield per acre than either the lighter or the heavier seeding.

In the results of experiments carried on at the College extending over a period of fifteen years, a combination of one bushel of oats and one bushel of barley, by weight, has produced the largest yield of grain per acre.

In 1918 an experiment was started with the object of trying to find out whether an addition of either spring wheat or peas to the standard mixture of oats and barley would increase or decrease the resultant crop. So far no definite results have been obtained. In the experiments at the College extending over a period of years a standard mixture of oats and barley has given the highest returns and when any other grain has been added to this mixture it has caused a decrease in the yield per acre.

In 1918 a co-operative experiment was conducted for the first time in using different combinations of oats and peas for the production of green fodder. Three mixtures were used in all, one bushel of peas being used with one, two and three bushels of oats. The mixtures, therefore, would vary from two to four bushels of seed per acre. The following table gives the average results of two tests with these mixtures for the past year:

Mixtures	Average Yield of Green Crop per acre (tons)
Peas, 1 bus., Oats, 2 bus.....	9.2
Peas, 1 bus., Oats, 1 bus.....	9.0
Peas, 1 bus., Oats, 3 bus.....	8.0

In the experimental work at the College in using different combinations, the most satisfactory results have been obtained by using a combination of one bushel of peas and two bushels of oats, by weight, or a total of three bushels of seed per acre. This co-operative experiment will likely be repeated over Ontario for several years.

VARIETIES OF CORN FOR FODDER AND FOR GRAIN.

In each of the past three years, seven varieties of corn have been distributed throughout Ontario for co-operative experiments. These have included four dent and three flint varieties and are those which have been selected by the Ontario Corn Growers' Association for general cultivation. The seven varieties in every instance were grown under similar conditions. As corn naturally cross-fertilizes it would, of course, be necessary to use fresh seed each year as the experiment would be in-

terfered with in the second year if the different varieties had been permitted to cross-fertilize in the year previous. In all corn experiments it is necessary to start each spring with fresh pure seed of each variety. In 1918 there were nine reports received giving the total yield of each variety but the corn was not sufficiently ripened to furnish a report of the shelled grain. The following table gives the average yield of total crop per acre of each of seven varieties of corn tested on nine farms in 1918 and on twenty-nine farms in the last three years:

Varieties	Average Yield of Green Crop per acre (tons)	
	1918 (9 tests)	Average 3 years (29 tests)
Wisconsin No. 7.....	9.66	10.63
Golden Glow.....	9.78	10.11
Compton's Early.....	9.17	9.56
White Cap Yellow Dent.....	8.55	9.35
Bailey.....	9.55	9.20
Longfellow	9.11	8.99
Salzer's North Dakota.....	9.25	8.62

In total crop of green fodder per acre, the greatest average yield was made by Wisconsin No. 7 in 1916 and by the Golden Glow in 1917 and in 1918.

In 1918, seven experimenters reported the yield of grain per acre as well as the yield of the total crop. The following table gives the results in yield of both total crop and of shelled grain of the seven complete reports for 1918:

Varieties	Yields per Acre, 1918 (7 tests)	
	Whole Crop (tons)	Grain (bushels)
Golden Glow.....	9.73	67.2
Bailey.....	9.31	61.2
Salzer's North Dakota	8.58	60.3
Compton's Early	8.97	60.2
White Cap Yellow Dent	8.51	59.0
Longfellow.....	9.21	55.5
Wisconsin No. 7.....	9.62	51.1

It will be seen that the Wisconsin No. 7 which is one of the largest yielders of total crop per acre gave the lowest yield of grain. This was likely due to the fact that in most cases the Wisconsin No. 7 did not fully mature as it is the latest corn of the seven varieties under test. It should be remembered that a corn experiment similar to the one here reported furnishes a large amount of valuable information to the different neighborhoods in which the experiments are conducted which is largely lost when the results are averaged. At the same time the average returns of the seven varieties, when grown under similar conditions, furnishes a certain amount of general information but the reports, of course, are not as valuable as they would be if the chemical analysis or even the amount of dry matter could be determined in each of the individual tests conducted throughout the Province. It should be understood that the seed used in every instance was grown in Ontario.

FIELD ROOTS.

Co-operative experiments were conducted in 1918 with mangels, sugar mangels, swede turnips, fall turnips, and carrots. The number of tests made in these crops is never as great on the average as those made with some of the cereals. Owing to the great scarcity of labor, farmers have found it difficult to grow the usual acreage of roots in connection with their farm practice. They have also found it difficult to experiment largely with the root crops owing to the fact that they require more labor than the cereals. Upwards of twenty complete reports, however, have been received of the carefully conducted tests with the different classes of roots. The average results are here presented in tabulated form:

Experiments	Varieties	Comparative Value	Yield per Acre (tons)
Mangels (7 tests)	{ Ideal Yellow Leviathan..... Sutton's Mammoth Long Red	88 100 76	25.27 25.01 25.01
Sugar Mangels (6 tests)	{ Bruce's Giant White Feeding..... Carter's Sugar.....	100 75	20.93 18.34
Swede Turnips (5 tests)	{ Steele, Briggs' Good Luck..... American Purple Top..... Canadian Gem	100 73 100	27.79 25.80 25.65
Carrots..... (4 tests)	{ Rennie's Mammoth Short White..... Bruce's Mammoth Intermediate Smooth White...	100 82	21.57 19.24

Varieties of Mangels. There are four distinct types of mangels grown in general cultivation in Ontario, viz.—long, intermediate, globe, and tankard. The globe mangels, however, are not as popular as they were formerly and at present are grown only to a very limited extent, the yield being low and the quality comparatively poor in comparison with some of the other types of mangels. Varieties of each of the four classes have been tested over a series of years at the Ontario Agricultural College. It has been the general opinion in past years that the long red type of mangel was the most prolific in root production. More recently, however, the majority of experiments at the College and throughout Ontario show that the highest yields have been obtained from some of the intermediate strains but the difference is not very marked.

In each of the past eight years, three varieties of mangels have been distributed for co-operative experiments throughout the Province. The long red type was represented by Sutton's Mammoth Long Red, the intermediate by the Yellow Leviathan, and the tankard by the Ideal. The following gives the average yield in tons per acre of seven experiments in 1918 and of sixty-seven experiments in the average of the past eight years:

Varieties	Average Yield of Roots per Acre (tons)	
	1918 (7 tests)	Average 8 Years (67 tests)
Yellow Leviathan	25.3	26.5
Sutton's Mammoth Long Red.....	25.0	26.3
Ideal (Tankard).....	25.0	26.2

It will be noticed that the average yields of the three varieties are not very different. The most popular variety was the Yellow Leviathan and the least popular in 1918 was the Sutton's Mammoth Long Red.

The seed of the Yellow Leviathan was first obtained by the Ontario Agricultural College from D. M. Ferry and Co. of Windsor, Ontario, in the spring of 1893. The name "Yellow Leviathan" was entered in the catalogues of some of the other seedsmen as follows:—Steele, Briggs' Seed Company, Toronto, 1896; Jas. Hewer, Guelph, 1908; the Wm. Rennie Seed Company, Toronto, J. A. Simmers, Toronto, and Jno. A. Bruce, Hamilton, in 1909; and Geo. Keith, Toronto, in 1910. We have found again in 1918 as in former years that the seed under the name "Yellow Leviathan" obtained from different seedsmen has differed considerably in germinating power of the seed and in shape, size, and color of the roots. Under these abnormal conditions, therefore, it has been exceedingly difficult for the seedsmen to secure good supplies of the seed of the best varieties. As normal conditions again return, we hope that all seed houses in Ontario will be enabled to supply seed true to variety.

Sugar Mangels. The name "Sugar Mangels" is frequently applied to a class of roots intermediate between mangels and the true sugar beets although they are frequently grouped in the same class as sugar beets in advertising catalogues. Sugar mangels are also called sugar beets for feeding purposes in some publications. As a rule mangels have about 5 per cent., sugar mangels 10 per cent. and sugar beets 15 per cent. of sugar. The sugar mangels grow more out of the ground than the sugar beets and are more easily harvested but do not yield quite as much as the leading varieties of mangels.

The Bruce's Giant White Feeding has given an average, in the fourteen tests conducted throughout Ontario in the past two years, of 20.8 and the Carter's Improved White Sugar of 17.6 tons of roots per acre. The Bruce's Giant White Feeding has given the highest yield of sugar mangels per acre at the Ontario Agricultural College in six years' tests of each of fourteen varieties of sugar mangels and sugar beets.

Swede Turnips. Swede turnips are still used quite extensively in Ontario for stock feed and to a limited extent for table use. They are also used for export from some of the counties to the United States. In three years previous to 1918, the same three varieties of swede turnips were used in the co-operative experiments, the following being the average yields in tons per acre for the three-year period:—Steele, Briggs' Good Luck, 27.0; American Purple Top, 25.8; and Garton's Model, 25.7. In 1918, the American Gem took the place of the Garton's Model but came at the bottom of the list in yield of roots per acre.

Fall Turnips. Fall turnips are grown to a very limited extent in Ontario and there is not much interest taken in this crop. The roots of this class usually yield well but do not keep late into the winter. The two varieties which have given comparatively good results at Guelph and in the co-operative experiments in former years are the Purple Top Mammoth and the Red Top White Globe. No satisfactory reports, however, were received from the co-operative experiments in either of the past two years.

Field Carrots. There are a number of intermediate white field carrots which are very similar but which are sold under different names by the different seedsmen in Ontario. The Rennie's Mammoth Short White and the Bruce's Mammoth Intermediate Smooth White have each been used for the co-operative experiments in the past three years. In the average of the twelve separate tests conducted in

the three-year period, it was found that the former gave an average of 17.1 and the latter 16.9 tons of roots per acre.

GRASS PEAS AND HAIRY VETCHES.

For twenty years in succession, experiments have been conducted throughout Ontario in the testing of grass peas, hairy vetches and common vetches. The hairy vetches in particular have been highly recommended in Ontario and they are used rather more extensively as a cover crop in orchards than as a fodder crop on the farm. The grass peas have been grown as a farm crop in some sections of the Province for many years past and the common vetches for mixing with oats as a green fodder. The following table gives the average results of two tests for 1918 and of fifty-six tests conducted over Ontario within the past eighteen years:

Varieties	Average Yield of Green Crop per Acre (tons)	
	1918 (2 tests)	Average 18 years (56 tests)
Hairy Vetches	11.7	8.7
Grass Peas.....	11.7	7.4
Common Vetches.....	11.4	7.4

It will be seen that the hairy vetches head the list in yield of green crop per acre in the average of the eighteen years. The hairy vetch is a leguminous crop and the feed is of excellent quality containing a large amount of nutritive food materials whether fed in the form of green fodder or of hay.

VARIETIES OF SWEET CORN FOR HOME USE.

Upwards of fifty varieties of sweet corn have been under test at the Ontario Agricultural College. These different varieties have all been studied in the field and many of them have been tested for table use. These varieties differ to a marked degree regarding size of ear, number of ears, flavor and juiciness of the cooked corn, etc. In the co-operative experiments, the varieties which have been used most extensively have been the Golden Bantam, the Evergreen Sweet, the Mammoth White Cory and the Malakhoff. Of these varieties the Golden Bantam has proven the best in past years. In each of the past six years only two varieties were selected for distribution, one being the kind which has proven most desirable for table use and the other being a standard late variety. The two kinds used were the Golden Bantam of the early and the Stowell's Evergreen of the late. The following table gives the average results of sixteen successfully conducted tests of these two varieties under similar conditions in 1918, and also of 129 tests within the past six years:

Varieties of Sweet Corn	Comparative Value		Number of Ears		Number of days until ready for table use		Table Quality			
							Flavor		Juiciness	
	1918	Ave. 6 yrs.	1918	Ave. 6 yrs.	1918	Ave. 6 yrs.	1918	Ave. 6 yrs.	1918	Ave. 6 yrs.
Golden Bantam	100	100	131	139	90	92	100	100	100	100
Stowell's Evergreen	74	74	123	122	99	104	77	76	96	90

It will be seen from the foregoing table that the Golden Bantam has been more popular with the experimenters and has produced corn of better quality than the Stowell's Evergreen in the average results for 1918 and for the past six years. The Golden Bantam has produced a greater number of ears and it is, on the average, about twelve days earlier than the Stowell's Evergreen. In the varieties which have been tested, the Golden Bantam has proven to be the best variety of sweet corn for home use. This variety is increasing rapidly in popularity throughout Ontario. As the result of fifty answers from farmers as to the most extensively grown variety of sweet corn in their different counties, twenty-eight mentioned Golden Bantam, ten Stowell's Evergreen, eight Cory, two Squaw, one Crosby, and one Ringleader.

VARIETIES OF POTATOES.

In 1918, as in each of the last six years, an enquiry was made from hundreds of potato experimenters regarding the most extensively grown varieties in the separate counties of Ontario. In all, 44 varieties were mentioned one or more times as being the most extensively grown in 1918, 60 in 1917, 57 in 1916, 39 in 1915, 51 in 1914, 57 in 1913, and 58 in 1912. In 1918, and in the average of the past six years, the varieties mentioned the greatest number of times as being the most extensively grown in the different counties of Ontario are as follows:

Varieties	1918	Average 6 years 1913-1918
Irish Cobbler	107	58
Delaware.....	24	30
Rural New Yorker No. 2.....	18	26
Carman	17	24
Green Mountain	41	24
Extra Early Eureka.....	23	14
Early Rose	22	14
Empire State.....	8	13
Carman No. 1.....	13	10
Dooley.....	6	8
Beauty of Hebron	6	8
Early Ohio.....	4	7
White Elephant	4	7
American Wonder	3	7

As some reports mentioned Carman, others Carman No. 1 and still others Carman No. 3, they have been classified exactly as reported. As the Green Mountain and the Delaware are frequently sold as the same variety it will be seen that these two taken together would, along with the Irish Cobbler, form the two varieties mentioned the greatest number of times. This has proven true in each of the past two years.

In the co-operative experiments conducted previous to 1913, it was found that the Davies' Warrior had made the highest record of the late potatoes and the Extra Early Eureka of the early varieties. It might be mentioned that the Extra Early Eureka and the Irish Cobbler are both early potatoes which resemble each other closely, but in the experiments extending over a series of years at the College the Extra Early Eureka has somewhat surpassed the Irish Cobbler in both yield and quality. It was decided in the spring of 1913 to use only the Davies' Warrior and the Extra Early Eureka for the co-operative tests. The same two varieties were used in each of five years and in 1917 the Irish Cobbler variety was added. The average results of the 93 carefully conducted

experiments in that year were as follows: Extra Early Eureka, 165.1. Irish Cobbler, 158.5 and Davies' Warrior 145.5 bushels per acre.

It was decided to distribute only two varieties in the spring of 1918, viz., the Irish Cobbler and the Green Mountain, the former being an early and the latter a late variety. These two varieties are extensively grown and it is very desirable that those sections of Ontario well suited for potato growing, commercially, should confine themselves to one or two varieties.

In 1918, 138 separate tests were successfully conducted throughout Ontario with the Irish Cobbler and the Green Mountain varieties of potatoes. In order to make the experiment as reliable as possible, seed of each of both of these varieties was obtained from Southern Ontario, from Northern Ontario and from New Brunswick. The following gives the average results of the 138 co-operative tests made in the last year:

Varieties	Percentage of Disease		Results of Co-operative Tests		
	Leaf Roll	Mosaic	Percentage Rotten Potatoes	Percentage Small Potatoes	Average Yield of Total Crop per acre (bus.)
Irish Cobbler	5.7	3.0	.4	16.7	134.3
Green Mountain.....	14.2	33.6	.5	16.3	129.5

The average results of the 138 tests of the Irish Cobbler and the Green Mountain varieties of potatoes obtained from each of three different sources show that the former surpassed the latter by 4.86 bushels per acre. The Green Mountain also contained slightly more rotten potatoes than the Irish Cobbler but the Irish Cobbler had one-third of one per cent. more small potatoes than the Green Mountain variety.

In securing potatoes from all the three sources care was taken to secure seed as free from disease as could be obtained at the time, although we believe in another year or two fuller information in regard to disease-free seed potatoes will be obtainable as through the co-operation of the Dominion and the Provincial Departments of Agriculture investigational work is now being conducted in regard to the diseases of potatoes in most of the Provinces. It was impossible to examine the growing potatoes in the numerous tests over Ontario, but each of the two varieties from each of the three sources was carefully examined from each of three dates of planting in the summer of the present year. For this information we wish to thank the Botanical Department for their kind assistance and co-operation. It will be seen from the tabulated results that the Irish Cobbler was on the average freer from Leaf Roll and Mosaic than the Green Mountain variety. The study of the susceptibility or the immunity of the different varieties of potatoes will be followed up carefully both at the College and throughout Ontario in the next few years.

NORTHERN AND SOUTHERN GROWN SEED POTATOES.

An experiment has been conducted at the College in each of several years in testing, under uniform conditions, potatoes obtained from different sources. The main sources of seed have been Southern Ontario, Northern Ontario and New Brunswick. Seed potatoes grown about 140 miles north of Guelph, in Muskoka district, near the Muskoka Lakes, gave a higher yield per acre than those obtained from any other source in each of the years in which this experiment was conducted.

More recently, potatoes have been obtained from Fort William as well as from the Muskoka district and both have given excellent results.

In 1918, two varieties of potatoes were obtained in the vicinity of Guélph, in Southern Ontario, the vicinity of Fort William, in Northern Ontario, and from New Brunswick. These were carefully tested in connection with the co-operative experiments throughout Ontario. The average results of the reports received from tests made on upwards of one hundred farms are as follows:

Districts	Average yield of potatoes per acre
	bus.
Northern Ontario	142.8
Southern Ontario	123.9
New Brunswick.....	119.5

In accordance with the results at the College over a series of years the potatoes from Northern Ontario gave a larger yield per acre than those grown in the Southern part of the Province. In the experiments at Guelph, the New Brunswick seed usually surpasses the seed obtained from Southern Ontario although it is not quite equal as a rule to that of Northern Ontario. In the co-operative experiments throughout Ontario in 1918, however, the New Brunswick seed gave the lowest results.

In connection with the presentation of these results it is important to also give the report of the diseases as determined at the College in the past summer on the potatoes grown from the seed obtained from the three different sources. These determinations were made through the kind co-operation of the Botanical Department at the College.

The following gives the average of six determinations made in each instance of the percentage disease of Leaf Roll and of Mosaic of potatoes from each of the three different sources:

Source of Seed	Average percentage of Disease	
	Leaf Roll	Mosaic
Northern Ontario	0.0	2.2
Southern Ontario.....	24.9	5.1
New Brunswick	5.0	47.7

It will be seen that the seed from Northern Ontario was the freest of disease, while that obtained from Southern Ontario had a considerable amount of Leaf Roll and that from New Brunswick a large percentage of Mosaic. We hope in 1919 to be able to secure seed from different sources which is comparatively free from disease as during the last summer a considerable amount of inspection and survey work in a study of the diseases was carried out in Northern Ontario, Southern Ontario and New Brunswick.

FERTILIZERS AND MANURES WITH FARM CROPS.

Within the past twenty-seven years interesting and valuable experiments with fertilizers and manures have been conducted with farm crops throughout Ontario. The work was made comparatively simple in the start and has gradually become more complex and of greater service as the time has advanced. The results which have been obtained are of general value. A number of the experimenters in connection with the Experimental Union have been carrying on tests successfully for a number of years and are now in a position to conduct fertilizer work with a large amount of satisfaction. Information is being obtained through the co-operation of the farmers themselves which could not possibly be obtained in any other way. The results of experiments conducted through the medium of the Experimental Union in past years may be secured in booklet form by writing to the Experimental Union Secretary, Agricultural College, Guelph.

In 1918 co-operative experiments with fertilizers and manures were conducted throughout Ontario with mangels, rape and winter wheat. Owing to the peculiar weather conditions of the past summer, no summary tabulated report has been issued except with the experiment in testing fertilizers with mangels.

An experiment was conducted throughout Ontario for five years in succession in the testing of different fertilizers with mangels. The results were very interesting and suggestive and showed that an application of 160 pounds of nitrate of soda per acre applied to the land when the mangels were about three inches in height increased the yield of roots by fully six tons per acre according to the average of forty-one separate tests conducted within the five-year period.

In the spring of 1911 another experiment was started with fertilizers and mangels. For this experiment, nitrate of soda was applied to the mangels at the rate of 100, 160, and 200 pounds per acre at the same time as the seed was sown, and also on separate plots when the mangel plants were about three inches in height. In comparison with the six plots with nitrate of soda, common salt was applied at the rate of 200 pounds and 400 pounds per acre at the time of sowing the mangel seed. Two plots were left unfertilized in each experiment. In 1911 and in 1916, no really satisfactory reports were obtained which could be used in a tabulated form. In 1912, 4; in 1913, 2; in 1914, 3; in 1915, 2; in 1917, 4; and in 1918, 3 complete reports were obtained. The following table gives the average of the three tests for 1918 and of the eighteen tests in the six-year period:

Fertilizers				Average yield of Mangels per acre (tons)	
Kinds	When Applied	Quantity per acre	*Approximate cost per acre	1918 3 tests	Ave. 6 years 18 tests
		lbs.	\$ c.		
1. Nothing.....	.....	.....	.....	26.20	24.42
2. Nitrate of Soda	When Plants were three inches tall	100	3 00	26.60	27.07
3. " " "		160	4 80	28.59	28.42
4. " " "		200	6 00	33.27	30.75
5. Nitrate of Soda	At the time seed was sown	100	3 00	30.24	27.68
6. " " "		160	4 80	30.79	28.92
7. " " "		200	6 00	34.44	30.84
8. Common Salt..		200	.....	27.65	27.47
9. " " ..		400	.....	27.88	27.16

* The prices here given for the nitrate of soda were approximately correct in the earlier years of this experiment and under normal conditions.

Attention has already been drawn to the fact that in a former experiment an application of 160 pounds of nitrate of soda per acre at the time of sowing the mangel seed, increased the crop 6 tons per acre. In the experiment here reported the 160 pounds of nitrate of soda applied at the time of sowing the mangel seed, increased the crop 4.5 tons per acre. The nitrate of soda applied when the mangel seed was sown gave a slight increase over that applied when the plants were three inches tall. The yield of mangels per acre has been increased or decreased according to the amount of nitrate of soda which has been applied. The highest average yield of roots per acre in the past six years was produced from the land which received 200 pounds of nitrate of soda per acre at the time the plants were about three inches in height. This was an increase of 6.4 tons per acre over the unfertilized land.

SUMMARY OF CO-OPERATIVE EXPERIMENTS IN WEED ERADICATION, 1912-1918.

PROF. J. E. HOWITT, O. A. COLLEGE, GUELPH.

This experimental work was commenced in 1912, and has been conducted now for seven successive years. The object of this work is to have carried on by men on their own farms experiments in the eradication of weeds, the results of which will furnish data from which definite information may be obtained regarding the best methods of controlling the various troublesome weeds of the Province. Before the results of these experiments began to accumulate there was little or no definite knowledge concerning the eradication of weeds. In the past seven years over seventy farmers have successfully conducted experiments in the eradication of weeds, the results of which have furnished much valuable information.

The following experiments have now been conducted for seven successive years: "The Use of Rape in the Destruction of Perennial Sow Thistle;" "A System of Intensive Cropping for the Eradication of Perennial Sow Thistle;" "The use of Rape in the Destruction of Twitch Grass," "A Method of Cultivation and Cropping for the Extermination of Twitch Grass;" "A Method of Cultivation and Cropping for the Eradication of Bladder Campion;" and "Spraying with Iron Sulphate to Destroy Mustard in Cereal Crops."

The following is a brief summary of the results obtained in these experiments:

Experiment No. 1. "The use of Rape in the Destruction of Perennial Sow Thistle." Total number of experimenters, 12; reporting complete success 9; reporting partial success, 2; reporting failure, 1. Kinds of soil on which this experiment was conducted: black muck, sandy loam, light clay loam, clay loam, gravel to clay and heavy clay.

Experiment No. 3. "The Use of Rape in the Destruction of Twitch Grass." Total number of experimenters, 12; reporting complete success, 9; reporting partial success, 3. Kinds of soil on which this experiment was conducted: sandy loam, clay loam, gravelly and light loam.

Experiment No. 4. "A Method of Cultivation and Cropping for Eradication of Twitch Grass." Total number of experimenters, 7; reporting complete success, 2; reporting partial success, 4; reporting failure, 1.

Experiment No. 5. "A Method of Cultivation for the Eradication of Bladder

Campion or Cow Bell." Total number of experimenters, 7; reporting complete success, 4; reporting partial success, 3.

Experiment No. 6. "Spraying with Iron Sulphate to Destroy Mustard in Cereal Crops." Total number of experimenters, 23; reporting complete success, 20; reporting partial success, 2; reporting failure, 1. Crops in which mustard was sprayed: oats, barley, and wheat. The reports show that there is no serious injury to standing crops or fresh seedlings of clover after spraying with a 20 per cent. solution of iron sulphate. Cost per acre of material, \$1.54. This is nearly doubled at the present time, the price of iron sulphate having increased from 50 per cent. to 100 per cent. due to the war.

Two other experiments have been conducted for two years, and one but for one year. *Experiment No. 7.* "A Method of Cultivation for the Destruction of Ox-eye Daisy," has been conducted for two years. The directions of this experiment are as follows: If the field is in sod (meadow or pasture) plow shallow (not more than 4 inches) towards the end of August, and harrow at once. Let it stand a couple of weeks and cultivate it the same way it was plowed, 2 or 3 inches deep. After a while cultivate a little deeper. If possible, cultivate a third or even a fourth time, going a little deeper each time. Then, if you can manage to do so, rib up with a double mould-board plow the last thing in fall. In the spring cultivate the field often enough to keep the Daisy from making any growth above ground until it is time to put in potatoes, corn, roots, or rape. The hoed crop must be repeatedly and thoroughly cultivated in order to be effective.

If the field was plowed last fall, this spring cultivate thoroughly until about the middle of June, running over it frequently with the cultivator so as to keep the tops down and thus weaken the "roots." Then apply manure at the rate of about 20 tons per acre (12 good loads). Cultivate the manure in thoroughly and with a double mould-board plow slightly ridge up the land, making the ridges about 26 inches apart. On the ridges sow pasture rape (Dwarf Essex variety) at the rate of 1½ pounds per acre. It is important that the right amount of rape should be sown. Sow the rape when the land is sufficiently moist to insure quick germination of the seed. Cultivate the rape every week or 10 days until it occupies all the ground and makes further cultivation impossible. When the rape is cut or pastured, there should be none of the Ox-eye Daisy left in the field.

In the two years that this experiment has been conducted three men have given it a trial. Two reported completely successful and one partially successful.

Experiment No. 8. "A Method of Cultivation and Cropping for the Suppression of Field Bindweed or Wild Morning Glory." The directions for this experiment are as follows: Get on the field just as soon as the land is dry enough to permit of cultivation. Do not give the Bindweed a chance to make any early spring growth. If the field is in sod, plow shallow. If the land was plowed last fall it will not be necessary to plow again this spring. Cultivate every week or ten days with a cultivator with broad points, that will cut all the plants off an inch or two below the ground without bringing the creeping root-stocks to the surface. Continue cultivation until the 24th of May or 1st of June. Then plant corn in hills 42 inches apart each way, so that it can be cultivated both ways. As soon as the corn is up, cultivate it with a corn cultivator at least every two weeks, oftener if possible. Just as soon as the corn is cut plow out the stocks and cultivate every ten days or two weeks with the broad-shared cultivator. It is very important to cultivate again as soon after the corn is cut as possible, so that the Bindweed will not have a chance to get started into growth.

Last thing in the fall rib up the land into drills, and allow to stand over winter. The frost in all probability will render material assistance in the eradication. The following spring, start cultivation with the broad-shared cultivator as soon as you can get on the land. Repeat frequently enough to prevent the Bindweed making any growth above the ground, until the first or middle of June. Then sow pasture rape (Dwarf Essex variety) or turnips, in drills 26 to 30 inches apart, at the rate of about 1½ pounds per acre. As soon as the crop is up, cultivate every week or ten days until it occupies all the ground and makes further cultivation impossible. If the Bindweed should get started in the rows, hoe it out as completely as possible. This, however, should not be necessary if the previous cultivation has been frequent and thorough.

This experiment requires two years and only one man has completed it. He reports that he did not find it satisfactory.

Experiment No. 9. "A Method of Two Hoed Crops for the Eradication of Wild Oats." The directions for this method are as follows: Plow the ground early in the spring, or if it has been plowed the previous fall, cultivate well and harrow the soil down fine in order to germinate the oats. When they have got well started disk or cultivate a second time. About the last week in May or the first of June apply a good coating of manure and plant corn in hills so that it can be cultivated both ways. Keep the corn well cultivated and hoe out any oats that may come up in the rows. When the crop is harvested plow seven or eight inches deep.

The next spring repeat the early cultivation until it is time to plant another crop of corn, potatoes, rape or turnips. If this second cultivated crop is well looked after and kept clean, the wild oats will likely be all germinated.

Follow this with a crop of barley, seeding down to red clover or alfalfa and you will have a good chance to get rid of any that may remain.

None of our experimenters have yet completed their work with this experiment.

Experiment No. 10. "A Method of Cultivation for the Destruction of Chess." The directions for carrying out this experiment are as follows: Plow the land two or three inches deep, as soon as possible after the grain crop has been removed. Then work it up fine with the use of the roller and harrow to conserve the moisture, so that a large percentage of the Chess seed will be encouraged to germinate. In two or three weeks cultivate with a spring-tooth cultivator and harrow well. Continue to cultivate or disk the land frequently until the late fall, when it should be plowed deeply in order to bring the lower section of the soil to the surface.

Early in the spring, thoroughly stir the surface soil with the cultivator and harrow. In about two weeks cultivate or disk and sow barley or other spring grain, seeding down with red clover or alfalfa.

If it is desired, fall wheat may be sown instead of the spring grain. In that case the land should be summer fallowed until time to sow the wheat. The summer fallow must be well cultivated and kept clean, and the wheat should not be sown until the middle of September.

Only one man has completed this experiment and he reports that he found it satisfactory.

The results of the seven years' work with the first six experiments show clearly:

1. That good cultivation followed by rape sown in drills provides a means of eradicating both Perennial Sow Thistle and Twitch Grass.

2. That rape is a more satisfactory crop to use in the destruction of Twitch Grass than buckwheat.

3. That rape gives much better results in the eradication of Twitch Grass and Perennial Sow Thistle when sown in drills and cultivated than it does when sown broadcast.

4. That thorough, deep cultivation, in fall and spring, followed by a well cared for hoed crop will destroy Bladder Campion.

5. That Mustard may be prevented from seeding in oats, wheat and barley by spraying with a 20 per cent. solution of iron sulphate without any serious injury to the standing crop or to fresh seedings of clover.

R. M. AITON: It is rather disappointing that more farmers do not avail themselves of the opportunity of finding out, co-operatively, the best methods of destroying weeds on their farms. We all must recognize the need and importance of the weed question. There are those to-day who do not believe they lose much from the prevalence of weeds in their crops. I think the weed question is of the greatest importance at the present time because their destruction during the last two or three years seems to have been neglected throughout the Province to a large extent.

I had the opportunity of visiting a number of the experimenters last summer. I have seen their work and it is very interesting. I visited three men who were experimenting with Twitch Grass. One of these men had killed off Perennial Sow Thistle along with the Twitch Grass. It is rather interesting to know that while the Twitch Grass is generally all over the field and the Perennial Sow Thistle only in patches, yet wherever the Perennial Sow Thistle is established the Twitch Grass is killed out. This man stated that he found it easier to kill the Sow Thistle by cultivation when the Twitch Grass was present. While it is generally supposed that shallow cultivation is best for killing Twitch, this man employed a method of deep cultivation by using a wide base on the cultivator, thus causing the soil to dry out and killing more Twitch.

THE PRESIDENT: There is one phase of the weed situation that does not come within the scope of the co-operative work, yet it is a most serious feature—the spread of weeds from the farms that have permanent grass lands. I live in one of the best mixed farming districts in the Province, and many of the permanent grass lands are often badly infested with thistles. This is a source of contamination for other adjoining farms which are comparatively free from weeds. I believe the law provides for Weed Inspectors and, in some measure, for enforcement of the act, but I have never seen it in operation.

PROF. HOWITT: It seems to me that the condition you describe is a matter of law not put into force. That question was brought up two or three years ago, and a motion made that something should be done by this Union to bring the matter to the attention of the Government and have the law enforced. The regulation I think has not been enforced on account of the shortage of labor during the war. It seems to me that this subject might be re-opened now and steps taken that would enforce the putting into operation of an effective method of weed control on unoccupied land, in fence corners and along railroads.

MR. REVELL: There is a provision in the Provincial Statutes that the pathmasters of the country shall include in their statute labor the work of fighting against weeds on the roadside. That law is a dead letter. In the section where I live, in 1912 the roadside was then comparatively clean of weeds but it is so thick with weeds to-day that it could hardly be called a roadside.

Another factor in the eradication of weeds is the farm tractor. I believe the small tractor on the Ontario farm will be an effective means of keeping down the weeds.

A MEMBER: In regard to the spraying of cereal crops with Iron Sulphate to keep down the mustard, does it injure the clover?

PROF. HOWITT: We have not had any permanent injury to clover from such spraying.

THE PRESIDENT: Have any of the members had any experience as regards weed inspection being in force in your district?

A MEMBER: One of the weak points of the weed question is found in the buying of seed. At the present time clover seed is graded as No. 1, 2 and 3. We know about how many noxious seeds there are in a bag but we do not know the total weed content or their kind. I think it would be an improvement, instead of saying No. 1, 2 or 3, to have stated exactly what weeds are contained in samples of seed. In this way the farmer could reduce the number of weeds on his farm.

PROF. HOWITT: That is a Dominion enactment. Anybody who buys clover or grass seed can find out exactly what is in it by sending a sample to the Dominion Department of Agriculture. The suggestion is a good one, but you can see the labor that would be involved if all the different kinds of weeds had to be mentioned in the samples.

A MEMBER: I would like to know when rape is used in the eradication of weeds if it is pastured or cut as green fodder.

PROF. HOWITT: It can either be pastured or cut as green feed.

RESULTS OF CO-OPERATIVE EXPERIMENTS ON SOIL REQUIREMENTS.

PROF. R. HARCOURT, O. A. COLLEGE, GUELPH.

The matter I want to bring before you is not so much the results of co-operative experiments as it is to outline the nature of the work in connection with our soil survey and to give you a few of the results we have obtained.

A systematic study of the soils of the Province is necessary for the full development of agriculture. Isolated studies of samples of soils sent to the laboratory will never accomplish much. We must go into it more thoroughly and study the soils in their natural position, taking into consideration the nature of the materials which constitute them, how they were laid down, their texture and general characteristics, etc. This is what we are seeking to do in our survey of the soils of the Province.

In carrying out this work we examine the soils in the field to determine the type. That is, whether they are sands, clays or mixtures of them. In further classifying them we take into consideration their geological origin, how they were formed, that is, under what forces they were laid down: what is the natural conditions of drainage, etc. In this way we find that we have several distinct series of soils in which there may be all of the several classes of soils. Full notes are taken on the characteristics of the various series and types and the boundaries are mapped as accurately as possible. The soils will also be studied from a physical and chemical standpoint, which will be followed up with plot experiments on soil characteristic of the type.

We find that the soils of the older part of the Province may be divided into two great classes, which may be termed Upland and Lowland soils. The central part of the Province including the soils of this district are our upland soils, soils that were not laid down under water. They were laid down by running water but not in still water. The lowland soils were laid down in the old glacial lakes, and, being laid down in the still waters, are made up of small particles and thus clay predominates. Here and there the clay is covered with coarser run-off materials from the uplands, giving sandy areas, such as is found in Norfolk County. In these lowland soils there are different series. For instance the clay of the Niagara Peninsula is quite different to the black clay of Essex, Kent and Lambton counties and that of Halton and Peel counties belongs to still another series. They all have some characteristics in common, but are distinctly different in some other respects.

The practical results from the work will follow the study of these soils, so that specific statements can be made regarding their cultivation, cropping and manuring. These are naturally big problems and will take time to work them out.

The lowland soils appear to be more deficient in lime than those of the uplands, and lack of this constituent in the clays results in poor physical condition, and, consequently in poor aeration and lack of life in the soil. Applications of lime on preliminary trial plots in Welland County have increased the yield of hay over sixty per cent.; whereas we have been unable to get any results from the upland soils in the neighborhood of Guelph. Lime has also shown very decided results on the lowland sands of Norfolk County.

The use of phosphoric acid on the lowland soils of the Niagara Peninsula and on the same nature of soils up along Lake Huron has given good results. Thus basic slag on Haldimand clay land sown with wheat has increased the yield over 200 per cent., and a phosphatic fertilizer in addition to general manuring increased the yield of turnips in the neighborhood of Goderich by 33 per cent.

What we hope to accomplish after classifying the soils is to develop the study of their needs in order that we may intelligently apply the right materials. In this connection, I may say that we hope to gather much information from the large number of experiments carried out by the Experimental Union by locating the individual experiment on its particular soil series and type.

A MEMBER: You have stated that in many sections of the country the surface soil is deficient in lime, but that there is an abundance at 18 to 20 inches. Can this lime be brought up by a system of cropping?

PROF. HARCOURT: Not in sufficient quantities.

A MEMBER: How can we get this lime up?

PROF. HARCOURT: You cannot get it up, you will have to put lime on top.

A MEMBER: What about sub-soil plowing?

PROF. HARCOURT: You don't want the soil 18 inches below the surface brought to the top. Loosening it will help when the roots reach it, but the surface soil is left in a condition to form a poor seed-bed. Lime is one of the cheapest materials we can add to a soil and one that is very important. In fact an abundance of lime and decaying organic matter are of fundamental importance in the handling of any soil. It frequently occurs that alfalfa will make a poor growth and be sickly in appearance the first season, but if it weathers the first winter it afterwards makes a vigorous growth. Probably this is due to the roots working the greater part of the first season in an uncongenial soil, and that later when the roots reached the limy sub-soil they developed more quickly and fully.

A MEMBER: In the neighborhood of Seaforth and Goderich there is a great diversity of soil. Will it all respond alike to the use of phosphates?

PROF. HARCOURT: I remember attending a meeting of farmers near Goderich, when one man stated that he could not raise a good crop even of oats without the use of a fertilizer in which phosphates predominated. Another man in the same meeting stated that he never used any fertilizer, and claimed he could raise as good a crop as the first speaker. On following the matter up it was found that the two men were on entirely different types of soil. Undoubtedly some of the soil of that district is badly in need of phosphorus. Our survey of the district confirms the fact that there is a great diversity of soil, but we have not as yet studied the soils sufficiently to state which of the diverse types require phosphate most.

A MEMBER: What are the results with acid phosphate on heavy clay soils?

PROF. HARCOURT: In many cases it has increased the yields, but we cannot say from the experiments so far conducted that the clay soils of all the series recognized will respond to the acid phosphate.

A MEMBER: Which has given the best results, acid phosphate or basic slag?

PROF. HARCOURT: We are not yet in a position to make a positive statement on this point; but I may say the basic slag has given good results. Perhaps this is due to the fact that it supplies lime as well as phosphorus.

A MEMBER: Which form of lime do you find gives the best results, burnt lime or the ground limestone rock?

PROF. HARCOURT: Our experiments have not been continued long enough to answer this question from our own work. I think, however, the results of experiments carried out at other places and extending over long periods will warrant me in stating that for a quick result, especially on clay soil, burnt lime will be the best; but taken over a number of years, the ground rock will give the best results. I do not think that burnt lime should be applied to sandy soils.

A MEMBER: How much lime would you use on a heavy clay?

PROF. HARCOURT: About two tons of the carbonate of lime.

A MEMBER: What is your idea regarding the degree of fineness of this material?

PROF. HARCOURT: If all the material is reduced to a very fine powder it will be more quickly available than if left in a coarser form. On the other hand, if the rock is broken down until the larger particles are about the size of clover seed and all the fine dust naturally formed in the reduction left with it, it should be fine enough. Part of the dust will be as fine as could be wished for. That would do for immediate use and the coarser material would come into use later.

A MEMBER: What about marl?

PROF. HARCOURT: It is a good form of lime.

CO-OPERATION.

F. C. HART, DIRECTOR CO-OPERATIVE AND MARKETS BRANCH,
DEPARTMENT OF AGRICULTURE, TORONTO.

In presenting this subject, I desire to relate to you little stories of a few of the many Co-operative Associations over the Province, as illustrating some of the points to be considered in attempting to undertake Co-operative business. The illustrations are not the most important, but are simply chosen at random. It is over 300 miles from Montreal to Toronto—over 200 from Toronto to Windsor and over 1100 from Toronto to Kenora. Over this immense Province successful Co-operative businesses are flourishing, others are not so successful, and their experiences, of both kinds, may help us to travel aright.

As I said, Kenora is 1100 miles from Toronto and here we find the Kenora District Clover Seed Growers' Association. This district is in the position of having an excellent article to market and being a long distance from the market. The machinery for reaching that market was very inadequate, and so in August, 1917, an Association was formed. Arrangements were made whereby the seed was properly cleaned before shipment, with the result that \$30,000 worth of clover seed has found an easy and increasing market because one man, the manager, finds the distant market for fifty or more individuals, and because he has control of the quality of the product that goes out. Moreover, a market is created for the other seed grown in the district and seed prices are being obtained for Oats, Barley, Peas and Potatoes. This is an illustration of reaching the *distant market* through organization.

Did you ever hear of a place called Rydal Bank? This is a little village consisting of two stores, a saw mill and a hotel. It is four miles off the main line on the north shore east of Sault Ste. Marie. There is a branch railroad running in, over which a train runs at infrequent intervals. It is however, surrounded by a good farming district. Back in 1914 the owner of the saw mill wrote for information re forming a Co-operative Association. About two years later the Northern Co-operative Company was organized and incorporated, which took over the property of the saw mill owner, rented his store and warehouse, hired him as manager and started buying and selling. From a distance this looked like another case of unloading a white elephant on the farmer. Circumstances alter cases, however, and upon closer inquiry and from actual results, here is apparently, a God-send to people situated in what might be called the outskirts of the Province. Previous to the formation of this Company, the local store keepers, practically the only market, paid only in due bills—no cash. This Company started to pay cash and at trade prices, with the result that the members not only have a cash market, but a profitable business, the profits of which come back to themselves. At the present time this Company runs a local store, a grist mill, handles practically all farm produce, buys supplies, manufactures lumber and has lately erected a 50 bbl. flour mill to serve the north shore, the only flour mill in the whole territory except one on St. Joseph's Island, available only part of the year.

A few years ago there was organized a Potato Growers' Association in the Rainy River District for the purpose of marketing potatoes. For two or three years they were very successful, shipping from about seven points on the railroad and marketing all farm products: in fact, this was the only market for the great majority of

farmers in the district. Its success was due partly to its necessity and it was one of the most useful Associations of its kind in the Province. One can readily understand what it would mean to have such a marketing machinery break down, thus forcing the members to rebuild individual channels to market. Yet in spite of all its advantages and of its necessity, the Association did fail, the whole reason being that the accounts were not properly kept; probably no dishonesty, just failure to make records. Money was lost, distrust developed and the breakup occurred. Co-operation, no matter how necessary, cannot be permanently successful, unless carried out on sound business principles in every department.

Coming down to Sudbury a few years ago someone in the district conceived the idea of starting a Co-operative Creamery and making it the foundation for a big Farmers' Company to serve the north country. In order to make the foundation broad enough to carry the business that was supposed would come in the future, a \$20,000 plant was erected. Moreover many unnecessary expenses were incurred which made the overhead, in the initial stages of the business, altogether excessive. Though the idea of a Co-operative Creamery for the district was sound, the mistake was made of having too much ambition at the start. However, the Government came to the rescue with a loan of \$12,000, a change was made in management, expenses were cut down as much as possible and in spite of adverse circumstances the Company was able to meet expenses, including interest on its borrowings and to make a small trade dividend to its shareholders this last year. The prospects are that by economical management the Company will eventually attain its desired end. This little trade dividend turned the scale. A few weeks ago shares in this Company could not be given away; the trade dividend was concrete evidence of efficient business management, the result being more cream, more capital, more confidence, and I do not doubt that shares in the Company will be sought after so that patrons may share the prices received for their produce.

Another illustration of starting big. Back in 1910 some of the fruit growers in the Niagara District started a \$75,000 Company with a Dominion Charter for the purpose of selling fruit, not only over Ontario but shipping fruit to the West, shipping from five stations. The difficulty that arose was that of almost immediately having a large quantity of fruit to sell for which there was not sufficient time for the Company to work up trade connections through which to market. Consequently fruit spoiled, or was dumped on markets already supplied, with loss to the growers and the Company. The Company is still in existence, but this initial mistake has handicapped its whole career. As a result of the experience of this Company, smaller Associations sprung up, some of these perhaps going to the other extreme. For instance, in 1907 or 1908 an Association at Winona was formed with about fourteen members. Since that time only about six new members have been taken into the company. This is, perhaps, one of the best little fruit companies in the Province, making a success of the business and noted for the quality of its fruit, and yet, in spite of the fact that there are other good growers in the district anxious to join the Company, and whose fruit would not lower the quality of the output, the present members decline to admit them. A somewhat similar situation developed in the Leamington district. A Company was formed for the purpose of marketing early and hot house vegetables, etc. A success was made of the business and the members refused to admit others. This brought on the formation of another company in the same district and for the same purpose, two Growers' Companies working in the same field and in opposition. Fortunately, the growers of the district saw the situation rightly, the two companies have amalgamated, and a third com-

pany has come in, resulting in a strong company adequately serving the district and growing with the business opportunities that present themselves.

There are many fruit associations that might be mentioned as illustrating co-operative business. For instance, in 1915 an association at Vineland was organized and sold \$63,000 worth of fruit; In 1916, \$100,000 worth; in 1917, \$135,000 worth; as well as handling \$60,000 in supplies and in 1918, \$165,000 worth, with good profits every year and showing steady growth, opening up new lines of trade as occasion warrants, in fact serving the growers efficiently.

Before leaving the Niagara Fruit Associations, I wish to mention a point which makes these among the soundest co-operative institutions in the Province, and that is—there is practically no price cutting. The co-operative managers and the fruit dealers buy fruit on the one platform at the one price on any day. The trade in tender fruits is not demoralized, every one has a fair chance, and profitable and sound business results; and whenever we go over the Province we find in the Associations which give promise of permanence, this practice of price cutting is not used either in buying or in selling. In all such cases the usual trade margin is taken and the profit so made divided on the co-operative basis, that is, as a trade dividend.

There are about 50 Egg Circles in the Province, ranging in membership all the way from 4 to 400. The story of all these egg circles and others which have failed would give an almost complete picture of how co-operation should, or should not, be carried on. Time will not permit to tell any of these stories. In reading over the names where the circles are established, we find many of them whose previous market was the small-town local dealer, with his uneconomic method of marketing eggs. Such circles are now receiving, in spite of their distance from the central market, wholesale prices while unorganized points nearer often receive lower prices. The secret is not perhaps cheaper costs in marketing but elimination of waste by producing a better quality.

In live stock marketing, some interesting work is being done. During the last year possibly 600 cars of live stock have gone to Toronto market through Farmers' Shipping Associations—value about \$2,000,000. In some districts, notably in Grey, Bruce and Dufferin, practically every shipping point along the railroad has its Association. For instance, there is the Rocklyn Farmers' Club, consisting of 327 members, who shipped in the first year of their business some \$263,000 worth of stock. Another club in the same county, The Victoria Club, in 1915 between May 22nd and Oct. 1st, shipped \$82,000 worth of live stock; in 1916, 66 cars, \$222,000; in 1917, 73 cars, \$250,000; in 1918, 95 cars, \$280,000, and this with a membership of only 88. When the club started there were nine local drovers serving the district. To date there are three left, and even these three have to co-operate among themselves to fill a car.

All the illustrations so far have been of marketing associations. There are in the Province, some 500 or 600 Farmers' Clubs, and most of these have been practising the buying of supplies. This has been going on for a number of years and much valuable information gained and many of these clubs are now getting into the more difficult work of marketing. The buying and selling of a good many of these clubs has been centred in the United Farmers' Co-operative Company Ltd., a central organization with headquarters at Toronto, and doing a business last year, the fourth of its existence, of over one and three-quarter million dollars. The President of that Company is here to-day and will no doubt tell us the story of their progress.

And so the stories of co-operative endeavor over the Province could be continued. The examples given have not been especially picked out. Other Associations such as those in Brant County, Lambton, Simcoe, Leeds, Lennox and Addington and Dundas where County wide Associations are attempting to start, and many others could properly have been mentioned. They illustrate, however, certain principles which must be followed if Co-operation is to be a permanent factor in trade. Co-operation is not something that can be brought to you, you must do it yourself. It is not new, and it is not an experiment. It is not a panacea for all the ills of farming but is perhaps one of the most important factors in profitable agriculture. Any Association must have an economic basis or it cannot stand; it must follow laws of business. Necessity, enthusiasm and loyalty are not enough; beyond these there must be efficient business management. Especially at this time during the reconstruction period when prices of farm produce are falling, and must inevitably fall, the farmer should have his business organization with which to cope with the changing conditions.

CO-OPERATION.

R. W. E. BURNABY, PRESIDENT UNITED FARMERS' CO-OPERATIVE COMPANY,
JEFFERSON.

I feel it an honor to be asked to speak to you here and also to have my name coupled with the names of the other speakers on the programme.

The subject on which I am asked to base my remarks is one of very great interest to all classes of men and women and to none more than those engaged in the great farming industry.

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Before we can have co-operation we must have organization, and organization can be for no other purpose than to co-operate. They go hand in hand and cannot be separated.

Almost all industries and societies have organizations of some kind which have for their object the improvement of conditions relative thereto. For example:—the manufacturers, bankers, railroads, labor in all its branches, professional men, churches, and last but far from least, farmers. Probably the least efficient of all these is the most important industry of them all, viz.: farming. Some of the reasons for this lack of organization among farmers is, the very nature of the business, lack of public gatherings and the large numbers involved.

For generations farmers have been co-operators to a certain extent among themselves, with profit. They have owned machinery together, clubbed together in the buying of bulls and stallions, in egg circles, cheese factories, building of roads, churches, schools, etc.

There are many branches of co-operation as applied to our calling and as there are other gentlemen to speak on the same subject I think it wise to direct your attention particularly to co-operative buying and selling, as it affects the farming industry. On account of the position which I have the honor to hold as president of the United Farmers' Co-operative Co., Limited, I trust you will pardon a few references to that organization and the work it is doing for the farmers of this Province.

The difference between the wholesale and retail price of a commodity is largely a question of selling cost. The manufacturer sells in large quantities to the retailer at small selling cost. The retailer sells in small quantities, often on credit, at a considerable cost plus whatever profit competition will allow him. If then we, as farmers, can co-operate or work together so that we are in a position to buy in large quantities, we are then in a position to materially reduce the cost of distribution and eliminate altogether the retailers' profit. Just in the same way the nearer we can get to the consumer with the produce of our farms by reducing the distribution or selling cost, the better prices we can expect to receive.

This is the place the United Farmers' Co-operative Co., Limited, is trying to fill. The success the company has had in the five years it has been in existence is ample proof that there is a place in the business world for such an organization. A similar work, but along a little different line, is being carried on by the Department of Agriculture of this Province under the direction of Mr. Hart, the gentleman who has just spoken to us.

The United Farmers' Co-operative Co. is owned entirely by the farmers of Ontario. It now has a subscribed capital of \$100,000 and last year did a business of over one and three-quarter million dollars. They own and operate a large wholesale and retail grocery and produce business in Toronto, which not only gives us a wholesale connection, but also provides an excellent market for farm produce. Other lines handled by the company in large quantities are sugar, salt, feeds, coal, rope, binder twine, coal oil, seeds, fertilizer, implements, gas engines, harness, etc. We buy eggs, poultry, butter, vegetables, fruit, grain, hay, etc.

We are now preparing a catalogue of the lines handled preparatory to the establishment of a mail order business. We are also about to establish throughout the Province a system of central distributing warehouses, also a seed cleaning plant for the handling of grain and grass seeds.

We have also worked up a large and successful business in the co-operative selling of livestock. Within a few weeks we expect to own a seat in the livestock exchange at West Toronto and have our own office there.

The company is really the co-operative or trading branch of The United Farmers of Ontario. Our business is done largely through U.F.O. clubs, although the company and the association are separate organizations.

These clubs have their officers such as president, secretary and business manager. The latter is appointed to look after the buying and selling for the club. He is usually allowed a commission of one per cent. on business done to pay him for his time and trouble. In a few of the larger clubs a man is engaged on a salary basis to look after the business.

All business is done on a cash basis. Temporary credits for buying are arranged at the banks either by the personal guarantee of all or some of the members, or by the giving of collateral notes.

The object of the company is not to make money, but to distribute commodities at as low a cost as possible consistent with safety and efficiency. We have always paid a dividend of seven per cent. on the paid up capital stock and carried a small amount to reserve account each year. Further than this we do not aim to make a profit.

The growth of The United Farmers' Co-operative Co. has not been without many difficulties. We have had strong opposition from many sources. Combines, associations, manufacturers, wholesalers, retailers, newspapers and politicians have schemed to block us but in spite of this opposition we have met with most remark-

able and phenomenal success. The U.F.O. organization now has over six hundred clubs with a total membership of over twenty-five thousand and they are proving loyal to their organization.

We have on record many cases where goods have been sold by our competitors at an actual loss to themselves in their efforts to upset our organization. Wholesalers and manufacturers have refused to sell to us, and scheme after scheme has been concocted to draw away the business of club members. In the livestock we have probably met the greatest opposition. Drovers have actually bought hogs at outside points above the fed and watered price at the Toronto stock yards in their hope of stopping the co-operative shipping of live stock. They have changed their shipping days to the same day as ours in an effort to get control of the local shipping yard. Then at the stock yards there was for a long time an apparent organized effort to stop farmers from shipping their stock co-operatively.

Almost without exception, however, we have ultimately been able to win out. I do not mean by this that we do not expect further opposition. There will be lots of it, but if we stick together we are sure to overcome a great deal of it. We are looking forward to the day when a larger portion of the farmers' buying and selling will come and go through the one central office. When that day arrives, and it is apparently coming very rapidly, our orders will be of such magnitude, together with our attractive cash buying method, that few firms can afford to ignore the farmers' co-operative movement.

In this connection I am looking forward to the day when there will be a closer union between the government co-operative clubs and our own. Under the present system many farmers are actually competing against one another in their buying. The more buyers there are for anything the greater the tendency of the vendor to raise the price. On the other hand by combining orders into one we so strengthen our buying powers that there is every tendency toward the best possible price on the part of the vendor.

The business methods of the United Farmers' Co-operative Co. and the U.F.O. follow closely the plan adopted by the grain growers of the west, probably one of the most successful co-operative organizations in the world. A most interesting and instructive history of this organization has just been written in the book called "Deep Furrows." It is a book I would recommend very highly to anyone interested in the farmers' co-operative movement.

As already stated, our object has always been to keep prices as low as possible. There is another method practised by many co-operative companies which has many features about it that commend it highly. The plan is to sell goods at regular prices, and, at certain periods to declare a patronage dividend. It is claimed by the supporters of this system that much of the objection of wholesalers and manufacturers to sell to co-operative organizations would be overcome.

I am of the opinion that very shortly the farmers of this Province will be forced to create a co-operative system for the selling of milk. At the present time there are sections where the producer is selling his milk at less than cost. There is no organized method of handling this important product. Local associations have been formed with some success, but in the unorganized districts there is no effort whatever to get a fair price for the product. There is a movement on foot now for the organization of the cheese factories in the Province similar to the plan which is working out so well in Saskatchewan. There is certainly room for great improvement in the milk business.

There are many other features of co-operation which might be touched upon if time would allow.

In conclusion, I wish to thank you for the privilege of addressing you and trust that you will all get behind this big co-operative movement and push it for all you are worth. The movement can be made a success as it has in other lands but it requires a great deal of careful leadership and we, the young men, will have to do it. We must believe in its objects, in ourselves and the other fellow. Although we will have many discouragements and hard knocks we must be prepared to make sacrifices and often accept losses in order to win.

CO-OPERATION.

R. W. WADE, DIRECTOR OF CO-OPERATIVE WOOL MARKETING FOR ONTARIO,
DEPARTMENT OF AGRICULTURE, TORONTO.

The second wool sale of our Association has now been held and the reports made public. It might be well to review the prices of the wool market.

In 1913, wool sold around 17c. per pound. In 1914 (first year of the war) the wool price was approximately 20c. per pound. In 1915 and 1916 the wool increased in price to something like 30c. per pound. In 1917, the first year's work of the Ontario Sheep Breeders' Association, wool sold by the Association averaged something better than 60c. per pound. This wool was sold the latter part of June 1917, and up to that time wool was selling anywhere from 40c. to 54c. per pound. Immediately after the Ontario Sheep Breeders' Association sale the price was raised up to near the price obtained by the co-operative shippers. Something under 300,000 pounds was sold co-operatively in 1917.

In 1918 approximately 750,000 pounds have been collected by the Ontario Sheep Breeders' Association. The grades and number of pounds of this wool are as follows:

Grades.	Number of pounds.
Fine, medium combing	8,190
Medium combing	127,694
Medium clothing	24,558
Low, medium combing	226,354
Low combing	167,401
Coarse	103,825
Burry and seedy	15,593
Cotts	26,276
Dead	4,981
Grey and black	4,167
Tags	18,136
Miscellaneous	12,544

The sheep population for Canada is 2,000,000, for the United States 50,000,000, for the Argentine 80,000,000.

The wool clip from these countries would be nearly in the same proportion. A large portion of Argentine wool, as well as the bulk of our coarse wool, is marketed in the United States. This indicates how important the American market is in regulating wool prices. Previous to this year American prices, grade for grade, have been higher than those quoted in Canada.

The American Government early this year fixed the price of wool in the United States, based on the price of scoured wool on July 30th, 1917. The following table gives the American prices for scoured wool of our various Ontario grades, the average per cent. shrink, the price in the grease of Ontario wool at Boston, selling price of Ontario wool, and net price to Ontario wool growers:

Grades of Ontario Wool.	American fixed price on scoured basis.	Estimated average per cent. shrink of Ontario wool.	American price per pound at Boston for Ontario grades.	Selling price obtained by Ontario wool growers.	Net price to Ontario wool growers with 3½% selling charges deducted.
			Cents.	Cents.	Cents.
Med. combing	\$1 40	47 %	74.20	76½	74
Med. clothing	1 37	46½ %	73.29	73½	71
Low Med. combing	1 28	44½ %	71.04	73½	71
Low combing	1 17	44 %	65.52	67	65
Coarse combing	1 07	44¼ %	59.65	60¾	59

In connection with the above table it will be interesting to note that the average net price, column 5, for all classes of wool including rejects but leaving out some high priced miscellaneous wool, was 65.5c. per pound.

The average net price for all market grades which leaves out miscellaneous and rejects was 68.3c. per pound.

The average net price for all market grades except coarse was 70c. per pound.

The prices obtained in Ontario this year have been nearer a comparative proper basis of value than ever before. The growers of coarse wool should realize that, until either the manufacturer can better utilize this grade of wool or that the demand for coarse wool products create an increased demand for coarse wool, this grade cannot bring as high a price as the finer grades.

It is true that where the dealer has given approximately a flat price for wool the growers of this grade (coarse wool) have obtained a higher price than the market demands would warrant. In some cases the dealers, while making money on the finer grades, have lost money on the coarse. The co-operative selling of wool by grades is intended to put the wool trade on a proper basis and give each grade its proper market value. It should, moreover, be borne in mind by the wool grower that co-operation has brought the price of wool up to a level which it could not have attained if co-operation had not been employed. Some of our shippers may have obtained a lower price by selling co-operatively than if they had sold to the local dealer, but the reason that they had the offer of a higher price from the local dealer was the competition set up by co-operation, and the fact that the dealer was buying on practically a one-price basis.

True co-operation is standing together, and no man can say he is possessed with the spirit of co-operation who stays with the principle only so long as he sees more immediate profit for himself. The man who is not steadfast should not attach himself to any co-operative movement, and the one weakness in co-operative marketing has been that the individual would not remain steadfast long enough to secure for co-operation its utmost reward.

The Association has tried in every way to give each shipper full value for his clip. The wool was carefully weighed on arrival at Guelph, and each item required to make complete identification was noted. The wool was graded by

graders who know the grades and values of wool. The grades of wool were then re-weighed, and any discrepancy in weight over the first weighing was noted before the wool was finally put in the bins.

In case of clerical errors, the shipper was requested to call attention to such mistakes promptly in order that they might be adjusted.

Three and a half per cent. was taken off the selling price of each grade in order to cover the cost of sacks and twine, handling same, work of grading and selling wool at Guelph, etc. The net price per grade to the shippers is given in column five of the forgoing table.

The Ontario Sheep Breeders' Association through its officers and directors have influenced legislation for the protection of sheep, and are constantly endeavoring to protect the sheep owner. They, therefore, believe it is to the best interests of the sheep breeders to become members of the Association, and this is why a membership fee was deducted from each shipper's returns, as stated on application forms.

We believe that the work of the Ontario Sheep Breeders' Association in handling a half million dollars' worth of Ontario wool, has increased the price to the wool growers of this province by many thousands of dollars. The Association cannot obtain high prices for wool in the reject class, but the prices obtained for the market grades have compared favorably with that received by wool growers, either in Canada or the United States.

We recommend such careful handling of the wool product as will bring it to the market in its most desirable form, so that the highest price will be obtained by the Ontario wool grower.

CO-OPERATION.

H. H. LE DREW, LECTURER IN ECONOMICS, O. A. COLLEGE, GUELPH.

We often hear it said that an instructor need not look for any results in his life time. It is not often in a man's life that he sees such good results coming from his work as I have observed in listening to the addresses delivered at this meeting. Some of the ex-students will remember, long before any of the co-operative societies which we have heard mentioned this morning were thought of, of hearing me say, almost word for word, what has been said by the speakers this morning.

In 1906, we started this co-operative work at the College here. I can assure you, at that time, it was like the voice of one crying in the wilderness—nobody listened, no interest was taken. There were few co-operative societies then in existence.

The association at this College is truly experimental. We have no volume of business to show you in order to entice you to become co-operators. What we are doing is to test out some principles of co-operation and see if they are applicable to the conditions on the farm.

I have this to say, during the last three or four years, wherever efforts have been made to organize for co-operation, the sections where ex-students from this College are to be found have proved to be comparatively easy to organize. Now, that is our office. Some of you look for great things to be done by the co-operative society at this college, but that is not our purpose at all; our office is to experiment and try to ascertain the means that are best for co-operative societies, on a small

scale, and if our methods work out satisfactorily, to pass them on—if poor, to discard them.

The association at the O. A. C. is controlled entirely by the students themselves, and any mistakes that are made have to be charged against the students. That is precisely as it should be because the association has to stand on its own merits, no matter what happens. We have to stick to the orthodox rules of the game, rules that we have found to be right, helpful and successful in other countries. Our society here, small as it is, is founded upon the principles of one of the oldest institutions in the world. From them we have taken our rules, and applied same to our association as far as applicable to conditions here.

There is one thing we do that will answer a question that was brought up here, and that is, we invite inspection of our books by our members so they can see what we are doing. I am not quite sure that that would be good policy for a co-operative association out in the country where the members are not close enough together to correct any wrong impressions that might be made. We borrow what money we need at a fixed rate of interest which becomes an expenditure to the association. We do not issue stock, although I am satisfied there is a good field for that kind of co-operative society. I am also satisfied that a combination of a joint stock company and a truly co-operative association, would be a very strong organization for this Province and perhaps for the whole Dominion of Canada.

We also pay as much as we can in rebates annually. Some do not do that, but our experience is that it pays to hand out a dividend each year. In that way, when the students arrive, instead of having to preach the gospel of co-operation and instruct them all about it, all we have to do is to say that there is a co-operative society for them to join, if they wish, after they have enquired and satisfied themselves what we are doing. The students join readily. Out of a couple of hundred students, there are only twenty or thirty who are not members.

I must say a word about management. I am in favor of giving a manager all the scope he wants. It is important to select a good manager. If he is the wrong man, do not keep him. Once having put the manager on the job, give him full charge. It is true there is a Board to see that he carries out instructions and to see that others leave him alone. The manager's work is to see that the association is successful; that there is an annual rebate paid; that there is a good healthy growth; that there is no friction whatever, or, if such occurs, that it is instantly removed and that money be obtained with the least possible annoyance from members. After he does those things, he can do as he pleases. The manager must shoulder the full responsibility.

The Board has another duty which is to look over the political situation. It may be that the office of the Board is to keep the association unspotted from the world of politics, but whether it be that or to take an active part, I am satisfied that one of the duties of the Board is to understand the situation and bring in recommendations from time to time.

There is another feature and that is the reciprocal nature of the co-operative association. An animal could no more gain without the circulating system of the blood than could a co-operative association without the help and assistance of its members. That is a feature about which we can boast at this College. When a man becomes a member of a society he must realize that he must think for it, act for it, fight for it if necessary, every day. He is a partner in that concern. It is his business and he must not go away and forget all about it but must do something he can for the association every day of his life. If the member fails

to do that, the society is as sure to go under as it is if you adopt any measure that is unbusinesslike. We have worked out that feature to our own satisfaction and I think there should be some means of bringing that feature of co-operative associations to the attention of its members from day to day, or from week to week, or from month to month. The big things accomplished by the co-operative associations are most encouraging and helpful to me in my work.

INCREASE IN EGG PRODUCTION IN THE WINTER SEASON.

PROF. W. R. GRAHAM, O. A. COLLEGE, GUELPH.

Increase in egg production in the winter season is a many sided* problem. It is influenced in particular by the stock, number of hours a hen can see to eat, the feeds given, the comfort of the houses, the attendant and the weather. There may be other factors unknown but at present these appear to be the main points of importance.

The attendant or the personal factor is more important than many consider. The attendant should be a keen observer, have good judgment as to the quantity to be fed, as well as a knowledge of the feeds required. He or she should also have a natural fondness for the stock.

The weather is one factor we cannot control. Continued lack of sunshine and temperature below zero usually lessen the production.

The house must be comfortable, not necessarily warm, but light, dry, well ventilated, and free from direct draughts over the birds.

The feeds given should be of a variety such as whole grain, ground grains, succulent feeds, green feeds, animal protein, as well as grit and shell.

One of the interesting factors influencing production in the winter season is the number of hours a hen can see to eat. Where the general condition of the housing and feeding are fair to good, it is quite possible, that, by maintaining fourteen hours of light for the hen to eat, a twenty-five per cent. or more increased production may reasonably be expected.

In order to lay well a hen must consume more feed than is required for body maintenance. When the days are short, now not much more than nine hours of daylight, many hens appear to have difficulty in consuming enough feed to lay well, but when we add five hours more of artificial lighting she does much better, and, of course, eats more food. We have not determined, as yet, how much increased feed is taken, but roughly it is fifteen per cent.

The best artificial light, all things considered, is electricity. It is much more convenient and less labor than ordinary barn lanterns or gasoline lanterns. It requires at least ten barn lanterns to light a house sixty feet long and twelve feet wide. Two gasoline lanterns would light the same house, or five ordinary electric lights. Some people use light both at morning and at night, others in the morning only, and others at night only. Our practice has been to use the light at night only, with the exception of a very few dull mornings when the pens are too dark for the hens to see to eat at about seven o'clock. Our pens are lighted in the afternoon as soon as the pens get dull or dark; at this season of the year between four and five o'clock; and the lights are turned off at nine o'clock. This makes about fourteen working or eating hours for the hens.

The results as secured to date are given on the following page:

NUMBER OF EGGS PRODUCED

	Oct. 6	Oct. 13	Oct. 20	Oct. 27	Nov. 3	Nov. 10	Nov. 17	Nov. 24	Dec. 1	Dec. 8	Dec. 15	Dec. 22	Dec. 29	Total	Av. eggs per bird
Pens 1 and 2—Lights.															
50 April hatched W. Leghorn pullets	53	150	211	250	265	257	213	219	193	201	200	171	146	2,529	50.58
Pens 5 and 6—No Light.															
50 April hatched W. Leghorn pullets.....	14	74	133	174	179	190	185	143	118	131	124	150	119	1,734	34.68
Pen 0—Lights.															
30 yearling W. Leghorn hens	76	96	89	108	114	122	105	119	95	88	90	84	64	1,250	41.66
Pen 4—No Light.															
30 yearling W. Leghorn hens	62	70	60	61	54	47	37	31	24	21	18	18	7	510	17.00
Pen A 1—Light put on October 15th.															
50 yearling Barred Rock hens.....		80	91	153	149	159	118	117	142	150	162	155	126	1,602	32.00
Pen 32—No Light.															
50 yearling Barred Rock hens.....		85	75	87	79	69	68	78	70	69	93	122	95	990	19.80
Pen A2—Light put on October 20th.															
50 May hatched Barred Rock pullets.....			3	26	83	123	170	197	203	201	211	204	141	1,562	31.24
Pen 26—No Light.															
50 May hatched Barred Rock pullets.....			10	10	9	19	43	60	79	94	119	138	118	699	13.98
160 March hatched Barred Rock pullets. No Light	491	507	566	620	664	736	736	723	689	640	632	568	457	8,029	50.18

The last column gives the egg production per bird for the time the test has been conducted.

It will be noticed there is a marked increase in egg production where the lights are used, whether pullets or yearling hens, or whether White Leghorns or Barred Plymouth Rocks.

The figures for the 160 March hatched pullets without lights are given to show that a pullet well bred and hatched early will give a good account of herself even when the days are short.

Good egg production can be secured without the use of extra lighting. Birds that are bred for high egg production will give a good account of themselves without extra lighting.

Good winter egg producing stock is that which is well bred, healthy, and of the proper age. It is understood that such stock to perform must be well fed and housed.

Early hatched pullets usually lay much better than hens during the winter. Our experience would indicate that it will take from five to six months to mature a pullet, ready to lay. Of course some families of the same breed mature much earlier than others, and the general care of the chicks, while growing, is of importance. Then again March hatched chickens lay at a younger age than do those hatched in April, while those hatched in May or June are still slower to mature; probably owing to lack of daylight in which to see to eat when nearing maturity.

Below is given the percentage egg production from the bred-to-lay Barred Rocks hatched in March, April and May, for the winter seasons of 1915-16; 1916-17; 1917-18; and 1918 to end of December:

—	September	October	November	December	January	February
1915-16						
March hatched pullets....	% 11.4	% 36.8	% 43.4	% 40.6	% 52.8	% 49.0
April hatched pullets....	0	8.3	24.6	29.5	41.8	44.0
May hatched pullets....	0	0	2.3	7.1	28.8	36.5
1916-17						
March hatched pullets....	41.2	53.4	28.8	35.0	45.0	42.2
April hatched pullets....	0	30.5	40.7	54.8	52.7	51.2
May hatched pullets....	0	0	6.5	18.0	29.5	39.0
1917-18						
March hatched pullets....	24.9	32.4	26.6	24.1	18.6	36.6
April hatched pullets....	0	10.2	30.0	28.0	25.7	39.5
May hatched pullets....	0	0	23.3	48.6	24.5	29.0
1918-19						
March hatched pullets....	27.0	47.2	63.1	54.9	.....	.....
April hatched pullets....	0	23.0	48.7	55.6	.....	.....
May hatched pullets....	0	0	23.9	44.0	.....	.....

It will be noted that in November, 1916, the March hatched pullets fell off in production. This was due to the fact that a number of them moulted. The winter of 1917-18 was unusual in many respects. We were obliged to change the attendant in October, and, furthermore, the grain feed was changed. These conditions, with an exceptionally cold winter, leave one in doubt as to why the birds did not perform as usual.

Taking all the figures, one can see the advisability of hatching pullets in late March and April where winter eggs are wanted.

One of the most perplexing and interesting problems is the selection or breeding of high egg producers. In a word, our results to date would suggest that it is a question of isolation of individuals, male and females, who have the ability to transmit heavy laying to their offspring.

Some time ago Dr. Pearl, formerly of the Maine Experiment Station, published a bulletin on "How Egg Production was Transmitted." His results suggested the value of the male and that a good hen mated to a poor male would likely give very indifferent results. He also made mention of the fact that among the high producing hens there were two classes, one of which was a much better breeder than the other. Our breeding work has been directed largely along the lines suggested by Dr. Pearl. It simply amounts to the selection, by means of the trap-nest, of the high layers; these in turn are mated to sons of high layers and the progeny of the mating is again tested as to egg production. In other words, it is isolation and progeny testing; the isolation of the good laying hen and the sons of the good layers; mating these together and testing the progeny. Later comes the isolation of good breeders of high performers, both male and female.

A pullet that lays over 30 eggs in November, December and January and over 150 eggs for twelve consecutive months, we consider a good layer. There are late hatched pullets that will not lay well during the winter but do well during June, July and August. These we are disposed to consider as good layers and that the lack of winter eggs was our fault in not hatching them earlier. A general statement would be that a good laying hen lays well during the winter and during June, July, and August. Almost any hen will lay well during March, April and May.

As an illustration of the method of progeny testing the following records of males and females are given:

Male No. 661 represents one of the best males we have found as judged by the performance of his daughters. He was bred to 13 females. The following table gives the females he was bred to, and includes the egg records of the hen, both winter production and the total for the year, together with the daughters of the mating.

Two of the hens were bred to other males and the results of these matings are given:

PROGENY TEST OF MALE 661

Dam	Winter Production	Yearly Production	Offspring	Winter Production	Yearly Production	Remarks
E182	41	162	F445	30	171	
			F759	23	170	
E190	72	203	F229	77	192	
E248	65	175	F 79	60	167	
			F116	58	.....	Died in May
			F147	93	227	
			F292	58	181	
			F309	63	129	
E267	27	124	F272	40	134	
E290	68	185	F110	72	.....	Died in June
			F123	37	149	
E307	53	184	F 12	22	161	
			F160	84	225	
			F235	91	174	
			F257	59	188	
E348	23	84	F260	69	163	
E354	17	61	F145	4	48	Moulted broody
E411	30	185	F 96	60	165	
			F175	57	194	
E188	17	125	F234	69	222	
			F304	59	183	
			F343	65	161	Died in July
D 4	61	199	G 271	46	179	Male A. O. 534
			G 309	69	213	E190 72 103
			G 340	43	193	E222 9 83
			G 341	58	182	Male C1047
D178	29	141	G 156	85	222	E277 47 184
			G 276	46	179	E271 19 179
B95	71	140	G 313	59	212	Male Extra
						D298 38 119

We would expect from such a male that all his daughters would give a winter egg production of over 30 eggs and that the yearly production would be from 150 eggs upwards.

F12 and F145 did not lay the required number of eggs during the winter but F12 did do fairly well for the year. F145 was a poor layer at all seasons of the year. She was broody several times and also moulted some feathers during the winter laying season.

Daughters F272 and F309 laid well during the winter but not so well for the year. This, in a measure, was due to them being out of condition for a part of the time.

Male 872 was bred to 12 hens. The number of offspring is small but, nevertheless, it is sufficient to at least suggest that this male is very much inclined to produce only fair daughters, none laying 200 or more eggs and several below the 150 egg standard for the year. We consider this male rather a poor producer.

PROGENY TEST OF MALE 872

Dam	Winter Production	Yearly Production	Progeny	Winter Production	Yearly Production
E 88	35	135	G 278	52	160
E205	52	130	G 196	51	165
E371	43	187	G 236	67	142
E372	25	179	G 161	50	189
E373	31	122	G 266	59	175
E396	29	103	G 175	26	138
E 405	25	93	G 187	35	85
E 438	35	152	G 275	53	186
E 452	13	95	G 206	49	123
E 482	52	160	G 64	12	143
			G 213	51	162
E 488	14	77	G 66	26	166
E 492	37	184	G 44	62	196

Male 3-1913 was successfully bred to but five females. The average egg production of all the daughters is high. It will be noted that this male bred much better to some hens than others.

We would expect the sons of F21 to be much more reliable breeders of high layers than the sons of F51 for the reason that all of the daughters of F21 were good layers, whereas one of the daughters of F51 was a poor layer.

PROGENY TEST OF MALE 3,-1913

Dam	Winter Production	Yearly Production	Progeny	Winter Production	Yearly Production
F 21	61	214	G 157	53	187
			G 159	90	252
			G 186	77	226
F 51	21	172	G 54	38	200
			G 247	13	119
			G 270	44	182
F 79	60	167	G 53	37	135
			G 163	88	282
F188	18	Died in April	G 56	58	211
F 239	66	200	G 171	39	165
			G 237	34	154

We would expect sons equal to male 661 if such male was bred to F21, but when F21 was bred to male 3-1913 we would expect about one-half of the males to be as good as male 661 and the others about like male 3-1913.

Now for a moment let us examine the records of three females on the progeny test basis:

PROGENY TEST OF HENS

Dam	Winter Production	Yearly Production	Dam	Winter Production	Yearly Production	Dam	Winter Production	Yearly Production
E 123	72	231	E 241	45	229	E 250	50	159
Bred to Male 700			Bred to Male 684			Bred to Male 658		
F 284	60	184	F 45	84	203	F 21	61	214
302	76	180	421	48	192	88	45	173
320	16	123	1998	0	137	97	79	219
			2000	39	172	124	23	154
						130	90	242
						146	54	Died in May
						159	87	242

—	Winter Production	Yearly Production	—	Winter Production	Yearly Production
Bred to Male 6-1913			Bred to Male 7-1913		
G 167	47	161	G 326	72	Died in April
320	15	128	334	84	234
354	48	161	289	63	164

Bred to Male 5145				
H332....May 18	Nov. 11	Dec. 21	X1998—March, April, May	41
H379	" 12	" 22	June, July, August.....	56
H401	" 9	" 26	September, October	40

Of the 3 hens, E123 is the best layer and E250 the poorest. The trap-nest has shown all three to be very good hens. Unfortunately we are unable to show the breeding results from E250 from more than one male.

E123 was bred to 2 males and in each case there is one poor daughter out of three produced.

E241 was bred to 3 males. Daughter No. 1,998 was a June hatched chick, hence the poor winter showing, but she did well during June, July and August, and we believe the lack of winter eggs was our fault, not hers. We have included three daughters hatched May 18th, 1918. These add interest, as from their performance thus far, we would expect them to equal their half-sisters for yearly production.

E250 is a very interesting bird, but one of her daughters is as poor a layer as she was and this one went into partial moult during the winter. Again if you refer to male 3-1913 you will note that F21 was a hen whose daughters were good layers.

In conclusion, of the birds cited we would expect excellent results from both males and females by mating such a male as No. 661 to hens E250, E241, and F21.

The trap-nest isolated the hen that laid. The testing of the progeny located the good breeder.

A MEMBER: What is as good as electric light?

PROF. GRAHAM: Some farmers are using barn lanterns, gasoline lanterns and natural gas. It will take an hour a day to fill the lanterns, clean the globes and trim the wicks. It takes two gasoline lanterns or ten barn lanterns or five ordinary electric lights to light a house 60 ft. x 12 ft. Natural gas is perhaps better than gasoline light but you have to protect your globes and be very careful how many nails you drive in the wall where the mantles are or you will break

more mantles than the value of the eggs you will get. Outside of that, one system of lighting will give as many eggs as the other. You will get enough eggs in a week to pay for the lighting all winter.

THE PRESIDENT: What is the effect of the longer hours of light on fertility?

PROF. GRAHAM: If anything, it will be detrimental to the male bird but not to the hen.

A MEMBER: What about hatching?

PROF. GRAHAM: That remains to be seen. I expect hens that lay heavily when put on lights will have greater hatching power, while the hens whose egg production does not increase will likely show a decrease in the hatching power.

A MEMBER: Is there any likelihood that the extra work, because of having the lights, will shorten the life of the bird?

PROF. GRAHAM: I do not think so.

A MEMBER: What does it cost to instal lights in a house?

PROF. GRAHAM: As near as I can tell, to use three lights in a pen of one hundred birds, the cost would be from four to five cents per night.

DR. ZAVITZ: Would this method of using artificial light be of much service on the average farm, in time to come?

PROF. GRAHAM: I judge that the general use of artificial light will not be practicable, for two reasons: first, it is bound to increase the work on the farm, and second, increase in egg production is a question of efficiency and careful management, and unless the caretaker is particularly interested in poultry I doubt whether the necessary attention will be given. There are farms where the artificial light is in use.

THE PRESIDENT: In regard to the color of the bred-to-lay strain of the Barred Rocks, do they run as light as the old style?

PROF. GRAHAM: They are not as light as they were. We put in with the bred-to-lay Barred Rocks a few exhibition bred birds each year, as new blood, trying to improve the color and type. It is a question whether they ever will be a good color. Color and egg production do not seem to like each other, also good color and early maturity do not appear to like one another.

THE OUTLOOK FOR FLAX GROWING IN ONTARIO.

R. L. DEFRIES, SECRETARY CANADIAN FLAX GROWERS' ASSOCIATION, TORONTO.

I have been asked to speak to you on one of the oldest industries in which mankind has engaged. The cultivation of flax and weaving of linen has been carried on for at least four thousand years. Centuries before the Christian era we read of kings who were clothed in purple and fine linen, and the tombs of Egypt and Assyria still furnish abundant proof that this art had been brought to a considerable state of perfection by these ancient peoples.

But however interesting an historical survey of the matter might be, we must in the short time at our disposal turn to the practical and not less interesting questions which arise in connection with the industry at the present time.

Four years of war have left their burdens of debt and taxation and we are beginning to realize in all parts of the Empire that if we are to maintain our proud place in the world we must give the closest attention to the development of our natural resources and the maintenance and expansion of our trade.

I need hardly say to you that in this particular industry we stand pre-eminent. Irish linens take first place in the world's markets and form a not inconsiderable portion of our export trade.

Now the problem which faces us to-day, and it is one in which Ontario is particularly interested—is to find within the Empire an adequate and satisfactory supply of raw material. As you all know more than half the world's supply of flax was grown in Russia before the war. Of the total imports into Great Britain for the eight years prior to 1914 Russia furnished 75 per cent.

As the war progressed these supplies steadily diminished until in 1917 they had entirely vanished—and that at a time when the demand for linen for aeroplane wings was becoming more and more insistent. It was under these circumstances that the call came to Ontario. In 1914 there were not more than fifteen scutch mills operating in this Province and the quantity of land devoted to flax could not have exceeded three thousand acres. During the past four years the number of mills has more than doubled, the flax area has increased to fourteen thousand acres, and the export market value of fibre and seed from last season's crop amounts to more than four and one-half millions of dollars.

As I consider these facts I am not surprised that you and others interested in the progress of Canada and of this Province in particular should ask what is to be the future of this industry now that the war is over. Can we continue to develop and build it up so that when trade conditions become normal we can carry on the business with profit to ourselves and the world at large?

In seeking an answer to this question we are naturally met by two others, namely, are conditions in Canada favorable to the economic production of flax—or are we likely to be crushed by competition from Russia and other countries?

The primary conditions of success would seem to be a favorable soil and climate and a sufficient supply of labor at such wages as the industry can afford to pay.

To what extent do these conditions exist in Canada? So far as soil and climate are concerned I think we may safely say that in a large part of Ontario they are eminently satisfactory and in every respect equal to most of the Russian flax districts. Our chief danger lies in a possible lack of rain during the month of June when the flax is making its growth but I believe, and you gentlemen who are more familiar with these problems than I am will bear me out when I say, that by proper drainage and first class cultivation of the soil loss from this source can be very greatly reduced, Russia also suffers from droughts and from the late frosts in the spring, but in spite of these handicaps has planted over three million acres of flax every year, for a number of years.

As to soil it must be admitted that the Irish farmer gets from thirty to forty per cent. more flax-straw per acre than we do. This I think is less due to natural conditions of soil and climate than to cultivation. Years ago in Ontario heavy crops of flax used to be grown on newly broken land and on similar land the same results are obtained to-day. I think, too, that under our present method of carrying on business we do not get the best land. Very little flax is grown by the farmer and sold to the scutch mill owner or taken to the mill to be scutched. The almost universal practice in Ontario is for the mill owner to rent a number of fields from the farmers in his district at a more or less uniform price per acre. The farmer cultivates the land, and sows the seed furnished to him by the mill owner—and this labor is included in the rental paid for the land. As I have said, this rental is more or less uniform in each district and it would therefore be surprising if the mill owner got the best land and if it got particularly good cultivation.

The present high price of flax has enabled the mill owner to greatly increase the rental paid for land, but as wheat and other crops have also been unusually profitable the situation has not materially changed. There is of course a limit to the price the mill owner will pay, because he takes all the risks, while the farmer gets his rent whether the crop be good or bad. It is only natural that under such circumstances the farmer should reserve his best land for his own crops. In an effort to overcome this difficulty some of the mill owners are now offering to pay a graduated rental based on the yield of straw per acre. Another method is to have the farmer grow his own crop under agreement whereby the mill owner is to pay him a certain price per ton for the straw delivered at the mill.

A suggestion has been made that the government should erect a mill in a suitable locality and try to get the farmers of the district to raise their own flax and have it scutched at the mill. This would enable the farmer to realize all the profits.

Of one thing we may be quite sure, namely, that we have in Ontario an abundance of excellent land suitable for our purposes, and I am convinced that we shall by one means or another bring more and more of the best of it into use for flax production.

I think we will all agree too, that we may look for improved methods of dealing with the soil so as to get the best results from it. This college, and the Departments of Agriculture may I think be congratulated upon the work they have already done along these lines. In a most interesting pamphlet on the flax industry in Canada written by Mr. Jas. A. MacCrackin, and published by the Department at Ottawa, he gives a lot of most valuable information as to fertilizers and cultivation.

The labor problems arise in connection with the harvesting and subsequent handling of the straw. For reasons which we have not time to discuss it has been found advisable to harvest the crop by pulling instead of cutting it. Up to date this has had to be done by manual labor, and when you consider that the pulling must be done as soon as the straw reaches a certain state of maturity and that the average worker does not pull more than a third of an acre a day you will realize what a difficult problem this is, and you will extend your sympathy to the flax-man who has to find sufficient help to gather in his crop of anything from three hundred to two thousand acres scattered about in fields of all sizes on farms more or less remote from his mills.

To the primary difficulty of finding sufficient laborers is added that of transporting them from field to field and of shielding them from the seductive influences of other mill owners who may happen to be short of help. Then again, it may rain and work has to cease until the straw is dry, and in the meantime the laborers have to be provided for.

We cannot pause to review the efforts which have been made to produce a machine to do this work. Three such were tried out in Ontario last year. One of them seems to combine all the essential elements of success. I saw it at work at Willowdale, where it pulled a number of acres successfully, and I am satisfied that with such improvements as will be made to it we shall have a satisfactory flax harvesting machine. This will mean the elimination of one of our greatest labor problems.

The next one is concerned with the retting process. In Canada we have followed the practice of dew retting, with all its uncertainties and with all the labor difficulties which it involves. After being pulled and brought to the mill for threshing, the straw has to be again carted out to the retting fields and there

carefully spread out and turned several times and gathered again into sheaves and brought back to the mill for scutching during the winter months. You will see that a number of hands and teams must be employed to do this work. I am afraid you will think from this brief survey that the problem of handling the crop from the time it is ripe for pulling until it is retted and stored in the barn is one of almost insuperable difficulty, but while it is not free from difficulty, it is so far from being insuperable that I know of one man in charge of six mills, who, with the assistance of his mill foreman, harvested and retted his entire crop of two thousand acres and had it stored ready for scutching before the winter set in.

But here again I think we are in the way of improvement. At the Experimental Farm at Ottawa the Government has established a scutch mill with tanks for water-retting which has given great satisfaction. Another tank retting system has been invented in France, which is intended to reproduce the conditions which prevail in the River Lys at Courtrai in Belgium, where the best retting is done. A plant was erected in France in 1914 but the outbreak of the war prevented its operation. I may say, however, that some of the Irish spinners have great faith in it, and I fully expect that in the near future we shall have one or more plants established in Ontario.

Of the great advantages arising from a proper system of water-retting one is the effect on the labor problem. All the rush and expense involved in field retting are done away with—the retting and scutching will give continuous employment to the help during the whole of the year, and we shall thus be able to build up a body of skilled flax workers, of which we are now sorely in need.

In the scutching department we may also look for the successful development of labor saving machinery. Mr. Summers of Port Huron, has invented a combined breaking and scutching machine which seemed to me to do excellent work. It is simple in character and construction, does not require a great deal of power to run it, and can be operated by comparatively unskilled labor. The machines when I saw them running in his factory were being operated by girls and less than a week's training was necessary to make them efficient.

Among other advantages to be gained by water-retting are first—an increase in the quantity of flax line obtained from the straw and second—an improvement of the quality of the fibre.

The process of field-retting, or dew-retting as it is commonly called, takes place in the autumn. A successful ret depends largely upon weather conditions. There must be a sufficiency of dew or rain and of heat to set up and maintain proper fermentation. These weather conditions are always variable and frequently quite unsatisfactory. As soon as a sufficient ret has been obtained the straw should at once be dried and brought in and stored, as over-retting will reduce the strength and quality of the fibre. It often happens that just as a field is ready for lifting a spell of wet weather will set in, and in spite of anything that can be done to prevent it, deterioration of the fibre takes place.

So long as the retting process is dependent on weather conditions we cannot look for uniformity of ret, and we must expect to lose a great deal of the value which the straw would possess if properly and evenly retted. I would not like to hazard a guess as to the monetary loss entailed by a week's rain or by early snow and frost when the straw is still in the retting fields, but it would run into very large figures over a period of years. I saw some fields this autumn in which the straw was so rotten that one could break a handful into pieces—it was in fact scarcely fit to be made into tow.

Generally speaking, the spinners prefer water-retted flax and are prepared to pay higher prices for it. As a rule the spinning qualities of the fibre are better and the strength and quality are more uniform. One great criticism the spinner makes of our dew-retted fibre is that one handful may be strong and another weak due largely to variations in the retting conditions.

It has never been possible for us to successfully grade our flax, although grading in a limited way has been attempted at one or two of the mills.

At a recent meeting of the Flax Growers' Association Mr. Grisdale, Deputy Minister of Agriculture for the Dominion, promised to lend the assistance of his department in any effort which might be made to grade our fibre, but while something may be accomplished along this line, entirely satisfactory results cannot be expected until a better retting system is introduced.

Now that we are considering the question of quality I might direct your attention to another point. Irish flax, and I believe the best grades of Continental flax, are harvested while the seed is quite unripe and, consequently, the fibre is of finer quality. So convinced are the Irish people of this fact that when it became apparent several years ago that there would be a scarcity of seed for planting a government order had to be passed requiring every farmer to allow one-tenth of his crop to grow until the seed matured; and it is significant that although the regulation required such a small proportion to be so treated it was in fact more observed in the breach than in the performance, and that many of those who did observe it set apart the poorest part of their crop for this purpose.

The Canadian practice has been to pull when the seed is so nearly ripe that it will mature while the sheaves are standing in the fields to dry before being drawn to the mill. The result is that although we get a somewhat coarser grade of flax we are able to sell our seed and what we lose on the price of the fibre may be made up by the value of the seed.

Up to the present our market for Canadian fibre has been found almost exclusively in the United States and we have, to a certain extent, been at the mercy of the American buyer. With the improvements which can be made in the quality of our product I believe we should have no difficulty in marketing our wares abroad and in obtaining full value for them. In normal times the cost of transportation from our ocean ports to the United Kingdom is so small as to be almost a negligible factor.

At the present time the Committee known as the Empire Flax Growing Committee meets regularly at the Board of Trade in London to devise means of developing the flax trade of the Empire so that we shall not at any time in the future be dependent on foreign countries for our supply of raw materials, and the mere fact that such a committee is in existence is the strongest evidence that our supply will receive a hearty welcome from the British spinners.

However interested we may be in trying to help maintain the linen industry of the Empire, there is another aspect of this question which must make a more direct appeal to us as Canadians. The war has left Canada with heavy financial obligations, but through our ability to export vast quantities of munitions, food stuffs and other war supplies we have enjoyed a favorable trade balance which must now naturally come to an end. In a recent Budget Speech the acting Minister of Finance stated that before the war our annual imports exceeded our exports by three hundred million dollars, and if we are to prevent a repetition of this unsatisfactory state of trade, it can only be by building up our own industries. Although the balance of trade with Europe during the war was enormously in our favor, our im-

ports from the United States continued to be greater than our exports to that country and one of the difficulties which we are contending with to-day is due to the heavy rate of exchange between us and our neighbors to the South. We have not been able to pay for our imports from the United States entirely with our own goods and in making cash payments we have had to pay for a considerable time from one to two per cent. premium on all our bills. It is therefore a matter of satisfaction to know that to the extent of at least some \$3,000,000, we are now delivering flax into that market.

Another manner in which we can help our trade balance is by developing the linen industry in our own country. For a great many years we have had a spinning mill at Doon making twines from Canadian flax and quite recently the Guelph Linen Mills have put in a spinning plant with the object of manufacturing our raw material into goods suitable for the Canadian market. Plans are now being developed for the erection of another mill with a similar object in view.

With almost unlimited possibilities of producing this raw material in our own country we should be able to build up a very large export trade and at the same time to furnish supplies for home manufacture.

I have refrained from dealing with the possibilities of growing flax in other parts of Canada, as your secretary asked me to speak only on the development of the industry in Ontario, but from experiments made by the Department of Agriculture at Ottawa it has been definitely ascertained that this industry can be successfully carried on in the Maritime Provinces, on the borders of the St. Lawrence in Quebec, and on the Pacific Coast. That it will be so developed I have every confidence.

Some years ago we had over fifty, some say one hundred, flax mills in Ontario. The business declined as it did in Ireland owing to the steady fall in prices for a number of years, and the increasing cost of labor with diminishing profits men ceased to take that interest in the industry which was necessary for its proper development. These times I believe have passed. We are learning the lessons of the war, not the least of which is that of industrial progress. We shall, I think, make progress in this particular industry along the lines I have referred to. We have literally set our hands to the plow and I believe we shall not turn back.

THE LIVE STOCK OUTLOOK.

PROF. WADE TOOLE, O. A. COLLEGE, GUELPH.

It is fitting at a meeting of this kind primarily intended to promote the interests of the producer of grain, seed, root and forage crops that a part of the programme be devoted to a consideration of live stock problems and particularly appropriate is it at this time to discuss "The Live Stock Outlook." The successful production of field crops and satisfactory returns from live stock are so interdependent in a country like Ontario, in fact in all Canada, that no one can reap the largest measure of success with one branch without paying due attention to the other. Good live stock cannot be produced without an abundance of the most economical feed, and the best field crops are always found on well fertilized farms where barnyard manure forms the basis of the fertilizer used. Just as good feed is necessary to the production of the best live stock so is an abundance of live stock necessary to return the plant food to the soil for the production of heavy

crops. Field Husbandry and Animal Husbandry are absolutely dependent one upon the other, and in Ontario, at least, it would seem that the future of our agricultural progress is very closely wrapped up in the live stock industry. Ontario farm crops depend upon Ontario live stock for their food; the farmer in Ontario depends directly upon live stock for his food; and urban dwellers, not only in this country but in countries overseas are in a measure dependent upon live stock in this country for their daily rations.

We are told that food was the final factor which brought the Central Powers to their knees. So will it be food that will be one of the main factors through the period of reconstruction on the threshold of which we stand at the present moment. Harmony, contentment and progress can never prevail where food is scarce. To make food reasonably plentiful great efforts are necessary in field, feed-lot and stable, and the live stock breeder must "Carry on."

When we look the matter squarely in the face there seems to be little danger in prophesying good times ahead for the breeder of high-class live stock. No one can say what prices will be. They may be lower, but in comparison with prices which will likely prevail for other farm products there is every reason to believe that the market for live stock and live stock products will be good. This is no time to be planning to go out of the live stock business. True, prices have been abnormally high and an easing off must come some time but there is little likelihood of the market going back to some of the low levels of years before the war and, comparatively speaking, the live stock business should be a good business for Ontario for all time.

If one stops to study the history of any branch of farming, or of any line of business, it will be found that invariably periods of high prices are followed by similar periods of lower prices. Every business has its ups and downs, but the successful man, no matter what his business, is the one who sticks to it over the hard places and thus reaps the greater reward in periods of high prices and keen demand. The man who is in live stock one year and out the next is generally the one who goes in too strongly on a high market and goes out quickly when prices drop, losing heavily on the transaction. If there ever was a time when Ontario breeders, yes breeders in all parts of Canada and in all States of the Union to the south of us, should stay in the live stock game it is the present. The past few years have been, comparatively speaking, fairly prosperous years for the man with his farm well stocked with high-class animals. The immediate future promises continued prosperity for the breeder of good stock.

Let us look into the figures showing some of the decreases of live stock in Europe as compared with conditions just before the war, when, you will remember, prices were high compared with those of a decade previous to that time and there was a growing demand for good meat of all kinds.

France has 2,366,000 fewer cattle than in 1914; Italy, 996,000; Denmark, 345,000; Sweden, 599,000; Germany, 2,200,000; and Austria-Hungary, considerable. These figures alone show a decrease of 6,306,000 head of cattle and many countries which have suffered are not named.

The sheep decrease in France, Italy, Denmark, and Holland alone is over two and one-half millions, and in pigs there has been a wholesale decrease to the number of 24,952,000 in France, Italy, Denmark, Sweden, Holland and Germany. Denmark, Canada's strongest competitor on the British bacon market is 1,873,000 short of a normal supply of pigs. Germany is 19,396,000 short of her 1914 hog population.

These figures should prove interesting to the Ontario live stock breeder. Reserves of food material in the world are very low. Stock with which to increase these reserves is not up to normal numerically. Indications are that a good demand must continue for the finished product of the farm.

Horses have not been meeting a keen demand in Canada since the war broke out and have increased about 650,000 since 1914. However, a real good heavy draft horse is hard to find, and if Old Country markets are any criterion of the trend of affairs an awakening in the Canadian Draft Horse market should soon follow. Draft geldings are selling in England for from \$300 to \$500 and even up to \$1,000 each. A returned officer told me recently of seeing a number of Canadian geldings (artillery and transport horses) sold in Old London for £100 (\$500) each. About one-fifth of Great Britain's ordinary supply of work horses went to the war and a number of useful brood mares were also taken. France, Belgium, Russia and Germany, four of the great horse-producing countries, have lost a heavy percentage of their horse stock during the war. Already a shipment of Percherons has gone from Western Canada to France, and it would seem that during the period of reconstruction our horse market will be East and not West. If it will pay to breed any horse on the Canadian farm the heavy draft of good quality should turn in most money to his owner. The tractor may, to a certain extent, revolutionize Canadian agriculture and transport work, but the clean-limbed, heavy, massive draft horse will always have his place—the bigger he is the better, provided quality is combined with weight.

We have room in Canada to do great things. At present we have only six head of cattle per hundred acres of land in farms. Holland has 29, Denmark 25 and Great Britain 16. More live stock would increase the fertility of our farms. We might just as well supply a larger percentage of Britain's beef needs. Out of over one billion and seventy-seven million pounds of beef annually imported by Great Britain, Canada ships only a little over twenty-nine million pounds. Canadian stockmen should plan to supply a higher part of the British beef requirements through keeping more and better-bred beef cattle.

Canada has two dairy cattle per hundred acres of land in farms. Great Britain has 5, Holland has 16, Denmark has 14. Dairy products of all kinds are and will be in good demand. Britain imports annually 452,795,264 lbs. of butter. Canada supplies a little over six million pounds of this. There is room for expansion with dairy cattle in Canada. A growing home demand makes prices fairly high for milk and cream and the cheese demand from overseas is likely to be fairly good. The dairy cow will continue to pay her way in this country. All that is required is more of the heavy producing kind. The scrub must go, and the 8,000 and 10,000 lb. cow take her place. There is no money in the 3,000 and 4,000 lb. producer. Better breeding and more careful testing should be followed.

Canada has only two sheep per hundred acres in farms. A great part of this country and particularly is this true of Ontario is well adapted for sheep breeding. The dog nuisance, a mistaken notion that sheep are hard to fence against, low prices for wool and lambs in the past, and other things have combined to turn the farmer against sheep. The higher prices of the past few years have increased the interest in sheep, and Canada has at present a little over three million head as compared with two million in 1914. Our farms would carry millions more. Wool in 1912 was 14c. per lb. In 1918 it was 68c. It can drop considerably and still be much higher than in pre-war times, and we are told

on good authority that it will be six years before the world's supply of wool can become normal. The demand for lamb and mutton is almost sure to be good. People have been learning to appreciate lamb while saving other meats for overseas. The outlook for the breeder of good sheep and the producer of high quality wool never was better.

The decrease in the number of hogs in European countries has already been pointed out. Canada must buckle in and produce a uniformly high-class bacon hog in large numbers to capture and hold the British market. We have only three pigs per hundred acres on farms in Canada. Denmark, in normal times, has 22. Canada should raise more hogs, and if the proper efforts are made to standardize the products, keeping close to the best bacon type, and to regulate the market so that there are no sudden ups and downs without apparent cause Canada will surely raise more hogs than ever before.

We have been considering chiefly live stock for the block. We have shown that the outlook is bright. It is even brighter for the breeder of pure-bred stock. Gradually people are beginning to appreciate the value of better breeding in their farm stock. While all classes of farm live stock in Canada have increased since 1914 (horses by nearly three-quarters of a million, milk cows by over 30,000, other cattle by several hundred thousand, pigs by nearly a million and sheep by practically a million) registrations of pure-breds have doubled and in some breeds increased five-fold as compared with those of the years before the war. Canada cannot get too many really top notch pure-breds.

The greatest need of the present is more good pure-bred sires. Too many otherwise careful farmers are careless about the sires used in their herds and flocks. It should be remembered that a good sire is at least half the herd and a poor one is all of it.

By using the best varieties and mixtures of grains, roots, clovers and grasses as recommended by the Experimental Department of this Institution and thus producing an abundance of the cheapest feed possible to procure, and by judiciously feeding this to more and better live stock, the future of the Canadian, and particularly the Ontario, farmer is assured. Canada exports \$150,000,000 worth of animals and animal products annually. Let us all do our part to bring this figure up to the \$500,000,000 mark which H. S. Arkell, Dominion Live Stock Commissioner, says we should be exporting inside of five years. This accomplished we will be doing our part to ensure the financial safety of the country we all love so much and at the same time the individual farmer will be reaping a steady reward from his live stock. Breed more stock. Breed better stock. Kill the scrubs. Stay in the business.

Remember I have not promised that meat prices will hold as high as they have been, but I have shown the reasons why they should be fairly high in comparison with prices of other products. The outlook for the breeder of good live stock who is prepared to stay with his job never was so bright. Live stock is the sheet anchor of all our agriculture. As in the past so will it be in the future, the threshing machine will stay longest on the farms carrying the greatest numbers of good live stock and the returns from such farms will be larger than from the farms upon which live stock in large numbers is not kept.

THE ECONOMIC USE OF THE TRACTOR ON THE ONTARIO FARM.

(This report was to have been given by Prof. W. H. Day, who, through illness, was unable to be present. Mr. Heimpel presented certain facts contained in letters received from farmers who were using different makes of tractors. This resume was summarized as follows:)

Tractors are used for the following kinds of work: plowing, harrowing, discing, reaping, hauling, threshing, etc.

(1) The men who have work of various kinds to keep a tractor going a large share of the time undoubtedly find the tractor an economic success.

(2) The largest factor in the success of the tractor is the operator.

(3) The reports generally show the following results as an average for plowing:

Power	Acres per day
8-16	5 to 6
9-18	6 " 7
10-20	7 " 8
12-24	7 " 9

(4) For ten tractors the total operating cost, including wages, per hour, was as follows: (1) 40.6 cents, (2) 35.1 cents, (3) 33.8 cents, (4) 59.6 cents, (5) 49.1 cents, (6) 44 cents, (7) 52.3 cents, (8) 51.7 cents, (9) 33.5 cents, (10) 80.3 cents, average: 47.8 cents.

(5) Fuel consumption runs about 2 gallons per acre plowed, with less quantities for light work.

THE PRESIDENT: The tractor question is a very interesting one and is important at the present time. I would like to hear from any who have had experience with tractors.

MR. REVELL: I have had experience in operating a tractor since November, 1916. All things considered, I think it is satisfactory. It is not altogether a question as to whether the tractor is as cheap as horse power but rather how much work can be done with a horse and man, and what can be done with a tractor. At our place we put all the work we possibly can on the tractor. Perhaps the nicest piece of work we ever carried out with a tractor was the preparing of the seed bed this spring. Our tractor is a 1916 model and only has one speed, which is a disadvantage. We pulled a 17 tooth Massey-Harris Spring Tooth Cultivator. We had the ratchet so regulated and it was cultivating to such a depth that it took a piece right out of the centre of that casting. Behind the cultivator we pulled three sections of harrows, the same width as the cultivator, then the roller, and went over 12 acres in 11 hours. Behind that came a man with three horses on the seed drill who covered the 12 acres in 10 hours. The horses travelled a little faster than under ordinary conditions. We averaged about three-quarters of an acre per hour. Two and one-quarter miles per hour was too fast a speed for loading hay, especially if the hay crop was at all heavy. This necessitated stopping occasionally and allowing the clutch to slip a little. We have two drive-ways, side by side, and pulled the loads in on the barn floor with the tractor. There is a short tongue in the waggon, and we simply had to draw

a pin, turn round and go out through the other barn door, hook on to the rope and operate the fork. We had more power than was needed and found it quicker handling the loads that way with the tractor than with a team of horses. We had our troubles, but the tractor certainly helped us to do lots of things we could not have done without it. Our machine is a 10-20 Case, and theoretically develops from 35 to 36 horse power, and the machine was recommended to pull three 14-inch bottoms. Now there is a new Case 10-18, recommended to pull two 14-inch plows and do practically the same amount of work in a day.

THE PRESIDENT: We have several tractors in our neighborhood of different types. During the last two years I found that all they were used for was for threshing and filling silos, especially the small sized tractor. We found ours more practical for such work than for plowing. We could do more and better work with a four-horse team and sulky plow than with the tractor, one reason being that our land is stony.

We have to keep a certain number of horses and by keeping an extra horse we could do the plowing cheaper than with a tractor that used three plows. We are looking forward to the time when tractors will be cheap enough to enable us to do our own plowing.

MR. HEIMPEL: I would like to take exception to the statement regarding the expense. I do not think one can plow cheaper with horses than with a tractor. A tractor will plow for about \$1.50 per acre, including repairs, where there are stones. We know there are about fifty companies trying to sell tractors in Ontario, and each one states they will sell 2,000 tractors this season. If tractors are no good, there will be a great many disappointed people in Ontario.

Talking about the horse power of tractors. Many rate the horse power where gas is used the same as where steam is the motive power. I can do as much work with a 20 h.p. steam tractor as can be done with a 60 h.p. gas tractor. I do not mean that gasoline does not develop 60 h.p., but the steam develops so many more. A steam engine rated at 60 h.p. will give 75 h.p. without any trouble. There is a great deal of difference of opinion regarding the amount of plowing that can be done with different sizes of engines and with different road speeds. One man will plow with two plows and another man with four plows, with the same engine. Probably the man with four plows would travel at half the speed of the man with two plows and in the end would have an equal amount of plowing done.

MR. REVELL: Regarding the cost of plowing. Before we purchased a tractor we were trying to find out the cost of keeping a horse and one man. We got in touch with the manager of the Walker farm, at Walkerville, Mr. Biggar, who stated they had 70 horses, each of which had to earn \$200 every year before he received any remuneration from them. That was a high price, but he said the time looking after the horse, depreciation, insurance and that sort of thing was not usually taken into consideration. The cost and upkeep of a tractor includes all those things.

THE PRESIDENT: I should have modified the statement I made regarding the cost of keeping horses and a tractor. I should have referred to the fact that it was almost necessary to keep at least three horses, and by keeping a fourth horse to make a four-horse team, it was a cheaper proposition than having three horses in the stable or running in the pasture, and having a tractor besides.

A MEMBER: I have had a little experience with a Fordson tractor. I figure it costs the farmer \$4.35 per day to maintain a team and a man. The man would have to be a pretty good walker to get over an acre and one-half in a day. We

found our tractor cost \$1 per acre for operating expenses. I plowed 6/10ths of an acre per hour which amounted to 6 acres for a ten-hour day, at a cost of \$6, or a saving of a little better than \$5 per day. The plowing I did was over a variety of land. The biggest day's work I accomplished was 8 acres on light soil. I plowed mostly with two 12-inch bottoms at the two and one-half mile speed. I remember one instance where the farmer was watching me plow a certain part of the field to see how I got along, and after I had plowed that piece of land, the farmer said the tractor was a marvel. He had tried to plow it the previous year with horses but was not successful.

Regarding plowing among stones and stumps, there was one farm particularly stony, and I found no difficulty, whatever, in connection with the stones. I did my own staking and finishing at the turns and nearly every one of the farmers came to see how I was getting along and each passed the opinion that the plowing was entirely successful.

REPORT OF THE FARM SURVEY IN OXFORD COUNTY.

(This report was to have been given by A. Leitch, B.S.A., Director of Farm Surveys. As he was unable to be present it was read by J. C. Coke, B.S.A., of the Farm Survey Department).

In presenting the report of the Farm Survey conducted in Oxford County during the past year by the Department of Farm Surveys, I shall not attempt to go into detail but deal only with the more important factors which we find influence the labor incomes from dairy farms.

The best method of comparing farm values is by means of the labor income, by which is meant the amount of money a farmer has left after paying the expenses of the farm, interest on investment and depreciation on buildings and machinery. Members of the family who worked on the farm were allowed wages, at the same rate of cost had the labor been hired.

One of the most important factors influencing the labor income is the size of the farm. This will be noted in the following table:

Size of farm (Tillable area)	No of Farms	Labor Income
		\$
Acres—21- 45	30	524
46- 60	41	719
61- 75	47	763
76- 90	88	1,237
91-110	68	1,296
111-135	41	1,533
136-160	22	1,873
161-185	11	2,016
Over 185	15	2,282

Without explaining all the reasons why this should be, it must be apparent that the very small farms cannot be as successfully organized as the larger farms. Still, even on these farms, an attempt might be made to increase the size of farm business. In an old settled district such as Oxford County it is almost impossible to secure additional land adjacent to present farms, so that the farmer

must look to other means for increasing the size of his farming business, and the opportunities of increasing the size of farms within their own boundaries is shown by the following chart:

100 ACRE FARMS

Tillable Area	No. of Farms	Crop Area	Real Estate	Live Stock	Labor	Current Expenses	Feed Bought	Labor Income
			\$	\$	\$	\$	\$	\$
Under 70	35	52	8,219	2,386	318	1,043	344	666
71- 80.....	34	60	9,250	2,765	306	1,096	358	1,116
81- 90.....	37	68	9,543	2,614	347	1,119	348	1,252
91-100.....	28	67	9,818	3,088	355	1,247	426	1,408

Over one-quarter of these 100 acre farms has more than 30 acres of land unfit for cultivation. By increasing the crop area from 52 acres as in the case of the farms in the first group, to 67 as in the case of those in the highest group the labor income was increased from \$666 to \$1,408 so that if the cost of clearing or draining the land as the case may be was not above \$100 per acre it would be a good proposition to clear up this uncultivated land. In the last two groups there is little difference in selling value of the farm, showing that in well settled districts such as Oxford County it is advisable to bring as much land under cultivation as possible.

DOES INTENSIVE DAIRYING PAY ?

Per Cent. of Farm Revenue from Dairy Cattle	No. of Farms	Labor Income	Labor per Farm	Receipts per cow in Milk	Live Stock Index	Feed Bought per Farm	Crops Sold per Farm
		\$	\$	\$		\$	\$
Below 51%	35	1,066	403	68	94	260	366
51- 60%	41	1,174	410	88	98	375	246
61- 70%	84	1,258	373	95	100	365	179
71- 80%	78	1,174	346	108	100	381	211
81- 90%	53	1,175	383	116	102	390	134
91-100%	31	1,006	374	124	102	404	41
Efficient Dairymen 88%	20	2,007	395	160	140	512	194

Among dairymen there always has been considerable difference of opinion regarding the extent to which it pays to specialize in dairying. We found that the largest profits were obtained by those farmers who derived 61 to 70 per cent. of their total income from dairy products and the balance from the sales of hogs, poultry, horses or sheep. This was true even though these farmers' cows did not give quite as large returns as those who specialized to a higher degree. The average dairy farmer in Oxford County comes within this class, deriving from 61 per cent. to 70 per cent. of his revenue from his dairy herd. The farmers in this class could secure larger returns by improving the quality of their cows. It is, however, apparent that the organization of the farm business in this class is the most profitable one for the average man in Oxford County.

Those in the last group termed "Efficient dairymen" had a diversity index of 88. The receipts per cow and labor income were much higher than in any other group showing that it is possible, where one has the qualification and inclination, to profitably specialize in dairying beyond the 75 per cent. mark, but only

20 out of 437 farmers in Oxford were able to do this. For the average farmer in Oxford County, therefore, he may be sure that it will pay to so organize the farm business that about 70 per cent. total revenue will be derived from dairy cattle and 30 per cent. from other sources.

Another important question which has confronted the dairymen is the matter of Summer versus Winter dairying.

—	No. of Farms	Labor Hired	Feed Bought	Ave. Labor Income
Farms selling most of milk from April 1st to Sept. 1st	160	\$ 371	\$ 355	\$ 1,162
Farms selling over 40% of year's milk from Oct. 1st to April 1st	100	379	500	1,378

The farms were divided on the basis of 40 per cent. or over of milk produced from October to March, inclusive. These were considered to be Winter dairymen, and under that were Summer dairymen. From the foregoing table it is apparent that on the farms where all year dairying was practised, labor was utilized more economically and the returns were nearly 20 per cent. more. Not only is this true but the extra feed consumed put the cows in better shape for the summer milking period.

INFLUENCE OF THE PURE-BRED SIRE

—	No. of Farms	Receipts per Cow	Feed per Cow	Profit over Feed
Grade Sire.....	140	\$ 84	\$ 65	\$ 19
Pure-bred Sire under 5 years.....	31	116	70	46
Pure-bred Sire, 5-10 years.....	62	123	72	51
Pure-bred Sire, over 10 years.....	69	129	72	57

While we have always known that the use of pure-bred sires was highly desirable, we now have some definite proof of the value of definite breeding. We found that out of 302 farms, 140 or 46 per cent. were still using grade sires, and cows from these herds gave a return of \$84 each, while the feed cost was \$65, leaving a profit of \$19. In the second group where pure-bred sires were used for five years the feed cost was almost the same but the profits per cow amounted to \$46. In the fourth group the profit was \$57 per cow or three times the profit from the cows in the first group, showing very clearly that the pure-bred sire has a great effect in improving the quality of the stock.

The cost of producing milk is a subject over which there is a lot of different opinions even amongst producers. As a matter of fact there has never been until the present any organized effort to find the exact cost of the product on a variety of farms. The information collected from the farmers in this survey gave the looked for opportunity for an investigation into the cost of milk produced during each month of the year. These farms were devoted to the production of milk as their main business. Therefore, each farm was treated as a manufacturing unit for producing milk. The costs of production therefore were made up on each farm of the following items: current expenses, (labor, repairs, seed, feed bought, taxes, etc.) depreciation on buildings and machinery, interest on invest-

ment at 7 per cent. and \$500 for labor of the farmer himself. From this total was deducted the amount received for crops, hogs, poultry and other miscellaneous sales. The difference was the cost of producing the milk sold. Of course, in many instances there were considerable profits from the sales of hogs, etc., but the effect was to reduce the cost of milk produced.

By this method it was found that the cost of production on all farms whose main business was dairying was \$2.17 per hundred pounds of milk. The only criticism of this method that can be offered is that the profits derived from hogs, crops, etc., on some farms reduced the cost of milk a few cents per hundred pounds, so the actual cost of milk alone should be slightly higher.

The farms which were not strictly dairy farms had slightly smaller labor incomes than the dairy farms. Therefore the milk cost them a little more to produce. We are safe in assuming then, that the cost of producing milk in Oxford County during the year ending February 28th, 1918, was \$2.20 per hundred pounds. This just equalled the selling price which averaged \$2,19½ per cwt.

We are forced to the conclusion, therefore, that the price received for milk during that year was just sufficient to pay the average dairyman's farm expenses, 7 per cent. interest on his investment and \$500 for his labor.

To enable him to make two per cent. additional interest on his investment he would have had to get \$2.52 per cwt. as the average price throughout the year.

A MEMBER: Did you get any information regarding the influence of sires with regard to direct performance?

MR. COKE: We have not been able to carry the investigation that far. We only had 302 farms because we only considered Holstein and Ayrshire breeds.

A MEMBER: What do those receipts per cow include, just milk receipts?

MR. COKE: Those are receipts for milk.

HON. NELSON MONTEITH: What attitude have you found on the part of the farmers towards this work?

MR. COKE: I think the feeling is improving considerably, because the farmers are beginning to realize that we are working for their interests and not with the intention of increasing the taxation or anything of that sort.

MR. BURNABY: I have some information regarding Holstein cows. From the figures given here, a great deal of credit is given to the pure-bred sire. Because a sire is pure-bred does make him a desirable sire always. I know of farms in this province where a farmer has a real good herd of pure-bred cattle and is using a pure-bred sire that is from a poorer cow than any cow in his herd, with the result that he is breeding down instead of up. While it is a fair indication of breeding up, to have a pure-bred sire where you have grade cattle, yet that is no proof that he is a better sire than one from your own cows. There is only one way to be sure, and that is, to see that the sire is backed up with official records.

A MEMBER: It might be added that the man who is enterprising enough to buy a pure-bred sire would be more likely to exercise better judgment and skill in his general business.

HON. NELSON MONTEITH: What part of Oxford County was this survey made in?

A MEMBER: We covered the territory around Ingersoll and Woodstock and as far north as Kintore, and also took a few records in Middlesex County. We endeavored to get as representative an area as possible.

EUROPEAN MARKETS FOR CANADIAN FOOD MATERIALS.

DR. G. C. CREELMAN, O. A. COLLEGE, GUELPH.

It is my privilege at this annual gathering of the Experimental Union to extend a welcome to those who have come to our supper.

The last four years have seen many changes at the College. The student body has dropped from 450 to about 200 but we are building up again, and next fall we may be swamped with applications as I am getting enquiries every day.

I feel almost as if I should offer an apology to you for the programme. For a number of years it has been usual to select some prominent man of the Province of Ontario and ask him to speak at this banquet, and to-night we expected to have had the pleasure of an address from the Hon. Mr. McGarry, the Provincial Treasurer. He is a man whom I respect very highly, and who has a grasp of the financial situation of this Province that no other man possesses. He finds it impossible to be here, and I have been asked by the Programme committee to transfer the address that I was to have given to-morrow night, and to speak to you on the subject of European conditions.

In August last year I had the privilege of visiting England, Scotland and France, and I will tell you of some of the outstanding impressions I received with regard to the important place that Great Britain took in the great world war, held until the end, and still maintains.

The first impression I got, as I sailed across the ocean, was the sight of the 22 crafts that comprised our convoy carrying 35,000 troops.

There were a number of Presidents of Agricultural Colleges of the United States who formed part of our company on board ship, who were going to Great Britain, France and Italy, at the request of President Wilson, to bring back reports as to what the farmers of America should do in the future.

Upon my arrival in England, the first impression I received was that everything seemed to be going on just the same. "Business as Usual." Trains ran on time, and as fast as usual. Boats were running. You received the same courteous treatment from the people everywhere. Fields looked as green and crops as good as they did anywhere. The people didn't show that they were denying themselves, although they were running themselves so close that Canadians or Americans would not have stood for it at all. I was allowed one ounce of butter a week but they camouflaged it by wrapping it up in a nice ball. From the King down, everybody was allowed one pound of meat per week and there was no complaining. Everybody said "We have to feed our soldiers, nurses and wounded" and they said "Anyway, we used to eat too much."

There was no fruit. I found apples selling at \$42 a barrel at an auction. They had hardly any apples last year and were importing none. There were no oranges, bananas, figs, prunes or grapes. I want to say that we have no idea of the sacrifice made by the people of Great Britain during the last four years—and saying nothing about it at all.

The next thing I noticed was in regard to their agriculture. They had broken up, last year, three million more acres of land than they ever did before. They had plowed up public parks, cricket grounds and the campus grounds at colleges, together with waste ground around the railroads. They had the finest season and the greatest crop known in their history. In the year 1918, there were 93 million bushels of wheat alone grown in Great Britain and other crops in proportion. They were not going to have it said that any soldier in the Empire should want food as long as the little islands of Great Britain could help in the

way of providing enormous quantities of food stuffs. The Minister of Agriculture told me that England had become more self-supporting than ever before. They raised enough food to last all the population 40 weeks, whereas before it was never more than enough for ten weeks. "They will go on and on," he said, "until they are independent of other nations in case of war."

My conversation with farmers was entirely contrary to what I have just said was the opinion of the Minister of Agriculture. The farmers said the moment they were free, they were going back into grass lands, as the cattle run from nine to ten months in the year. They explained that they had been planting wheat in the spring, that was harvested in three or four months and during the next six months there was no grass, only stubble. Then they said they were apt to be delayed with their harvest on account of wet weather and that in 1918 some wheat was still out till the last of October or first of November. That meant the grain was discolored and the millers in England said there really was no wheat fit for making good white flour last year.

I was surprised to find that in France and England there was more live stock now than before the war. The young stock had been conserved, as they knew there would be a great demand for them afterwards, in order to supply Belgium and parts of France. I could not believe it, until I obtained the statistics, and I found they had retained their young stock and that the old stock had been killed. Pigs and sheep were very scarce. I said to the farmers, "You are only getting 50c. for your wool, whereas we are getting 75c. in Guelph, and you are buying it from us." Those farmers said "Yes, but we have to pay something in this world war and, if we charged 75c. for our wool, the Government would have to pay the difference and that would increase the taxes. More than that, 50c. is a good price for the wool."

England's part in the war impressed me more than anything else. England supplied, collected, voted and spent thirty-eight billion dollars during this war. She never had a Victory Loan or anything put before the people in the way of a loan at any time. In addition to that, she was able to lend seven billion, five hundred and thirty-five million dollars (\$7,535,000,000) to the other Allies to help them do their part. Great Britain had six million men in France alone. She had armies at the same time in Egypt, Palestine, India, Mesopotamia, Salonika, Italy, Belgium and France.

A big German said to a little Tommy one day, "You English are a country of merchantmen, you fight for money; while we Germans fight for honour." Tommy spoke up and said, "Yes, each of us fights for the thing we haven't got."

In the first five months of the great war, in the year 1914, Great Britain lost 550,000 men, or 78 per cent. of her entire land forces. At the Somme there were 25,000 officers and 500,000 men on the casualty list. In 1917, Great Britain had 500,000 more men in France than France had herself.

The part played by the women in this war is remarkable. Some 270,000 worked every day, winter and summer on farms, and most of them had never worked on farms before. Lloyd George said that the five million women who went into the five thousand munition factories, and worked in there day and night, had saved the situation. Eighty per cent. of all the munition workers were women. They made it possible for the men to go to the front in France and Flanders. I want to add that the British seemed to place patriotism before profit every time.

Another institution that has been started over there since the war, is the Khaki University. It is a school for soldiers. It teaches everything from reading

and writing to mathematics in the higher forms. Everything that anyone would want to know at school is taught in the curriculum. I was told there were over 2,000 soldiers in the Canadian army who could not either read or write and that, already, there are some who could not at first sign their names who are now writing home to their families. Then there were thousands of young men who had started work in our colleges in this country, who are taking instruction behind the lines. Ten thousand Canadians evidenced their desire to take a course in agriculture. I visited eight camps where there were 200,000 men, and I saw the type of men who desired to take up general agriculture, also the study of poultry, bees and tractors. And so they were given instruction in all those subjects.

There is one organization in particular in which Canadians have distinguished themselves and that is the Red Cross Society. Our Red Cross have spent \$10,000 per day since 1916 for the welfare of the soldiers, and it is said that no money in this whole war has been used to better advantage than that spent by the Canadian Red Cross Organization. I had the opportunity of looking into it pretty closely, and saw it from top to bottom. The British and French army had men constantly in touch with the Canadian organization trying to perfect theirs along the same lines.

The same is true of the Young Men's Christian Association. I want to pay a tribute to that Association. Everyone of our college boys whom I asked about the "Y" said it was the finest organization over there. They said, the "Y" follows up to the very jaws of death. "When we are wounded, when we are tired, when we are put on a stretcher, or perhaps able to walk, we always find, within a few hundred yards, the little dug-out with Y. M. C. A. men in it, with a cup of coffee, package of cigarettes or tobacco. We never looked in vain for comfort and a cheery word."

Now, Europe will need live stock, but they will need meat foodstuffs more than live stock. Some think they must have killed every kind of live stock, but they did not do that. I was told they wanted meat and dairy products, but they said they could get all the pork they wanted from America and so they did not increase their number of hogs. But while there are as many cattle and horses on the land as there were before the war, they are short of horses just the same. They put three million more acres under cultivation, and needed more horses to that extent. They never use oxen in England. Sheep are scarce, but it is not likely they will ask for sheep from this country.

Europe's need is for concentrates to feed to their live stock. England never was so short of these, and it does hurt a good feeder not to have plenty of oil cake or cotton seed meal. Less than five pounds per day is allowed for dairy cattle this winter. Two and four-fifth pounds of bran and shorts and two and four-fifth pounds of oil cake or cotton seed meal is all that is allowed per cow. Meat, fats, dairy products and concentrates are the four needs at the present time. Britain said, "Bread we must have for our people, and yet we can see it will be hard to keep up the regular supply of wheat; therefore, we will ration other things and let bread be free."

They said they would pay \$2.50 if necessary for wheat, but would sell it to the people for the old price before the war, in order that they would have plenty to eat and be strong and well to raise good families and send the boys to the front in first class condition. So Great Britain has spent \$1,000,000 per day to make up the difference between the buying and selling price of wheat to the common people. What wonderful people are the British, and how they have kept up their strength and virility in this great war. All honor to Great Britain our Motherland.

REPORT
OF THE
Stallion Enrolment Board
OF
ONTARIO
1918

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
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1918

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To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the
Report of the Stallion Enrolment Board for 1918.

Respectfully submitted,

GEO. S. HENRY,

Minister of Agriculture.

TORONTO, 1918.

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ONTARIO STALLION ENROLMENT BOARD.

LIEUT.-COL. R. MCEWEN, London, Ont., *Chairman.*

JOHN GARDHOUSE, Weston, Ont.

F. C. GRENSIDE, V.S., Guelph, Ont.

PETER CHRISTIE, Manchester, Ont.

R. W. WADE, Parliament Buildings, Toronto, Ont., *Secretary.*

STALLION ENROLMENT BOARD

1918

TO THE HONOURABLE G. S. HENRY,

Minister of Agriculture for Ontario.

SIR,—The Ontario Stallion Enrolment Board has the honor to transmit herewith its report for the stallion year ending July 31st, 1918.

The number of stallions enrolled for the year 1918 is 1,993, of which 1,535 are pure breds and 458 grades. This is a decrease from 1917 of 258 pure breds and 182 grades.

As 1918 is the last year for the enrolling of grades there will be around 400 horses which were enrolled in 1918 that cannot be used in 1919. The vast majority of these horses are either taking the place of a good pure bred stallion or they are so competing against pure breds as to make the keeping of pure bred horses in the Province less profitable in those sections where grades abound.

To assist buyers in purchasing pure bred stallions a catalogue containing names and information regarding pure bred horses offered for sale will be printed and ready for distribution in the month of November. This catalogue will be sent on request from the office of the Secretary of the Stallion Enrolment Board.

With the elimination of grade stallions in 1919, it is hoped that a greater encouragement will be offered to the owners of desirable pure bred stallions, and also that it may prove a stimulus to the importing of valuable breeding stock. During the last few years horse breeding in Ontario has declined and consequently a decreased number of horses are annually offered for sale. Yet the price for horses has not increased proportionately with other classes of live stock. It would appear that there never was a better time for the farmer of Ontario to cull all undesirable females and breed select females to the highest class of pure bred sires obtainable. If this policy is pursued consistently for a few years there is no doubt that the Ontario horse breeders will place the Province in a foremost position as a ground for securing high class horses, and also with no more risk or trouble will be producing a much higher type of horse for the market, which will yield to the breeder vastly greater profits.

LIEUT.-COL. R. McEWEN, *Chairman.*
R. W. WADE, *Secretary.*

TORONTO, September 23rd, 1918.

“ The Ontario Stallion Act ”

Chap. 249, R.S.O., 1914.

As amended by 4 Geo. V, chap. 44 and 5 Geo. V, chap. 20, sec. 22.

1. This Act may be cited as THE ONTARIO STALLION ACT.

2. For the purpose of this Act,

(1) The Lieutenant-Governor in Council upon the recommendation of the Minister of Agriculture shall appoint four persons who, with the Director of the Live Stock Branch of the Department of Agriculture, shall constitute the Stallion Enrolment Board, hereinafter called “The Board.”

(2) The Director of the Live Stock Branch of the Department of Agriculture shall be the Secretary and Executive Officer of the Board.

3. The Minister of Agriculture may from time to time appoint competent persons to act as inspectors under the direction of the Board.

4. The appointed members of the Board and the Inspectors shall receive such per diem remuneration and allowance for necessary travelling expenses as may be fixed by the Lieutenant-Governor in Council out of monies voted by the Assembly.

5.—(1) No person shall stand, travel or offer for use or sale any stallion unless and until the name, description and pedigree of such stallion has been enrolled, and such stallion has been inspected in accordance with the provisions of this Act and a certificate of such enrolment and inspection has been issued as hereinafter provided.

(2) For the purposes of enrolment the owner of every stallion shall submit to the board all evidence of the breeding and ownership of such stallion.

(3) The owner of every stallion shall submit the same for inspection under this Act at such times and places as may be fixed by the board, who shall give notice thereof in such manner as may be prescribed by the regulations. Persons having stallions inspected shall submit to the board such evidence of the breeding and ownership of the stallion as may be required by the regulations and a report of such inspection shall be made to the Board.

(4) Upon the receipt of the report of inspection and the evidence of breeding and ownership and upon payment of the fee, the Board shall issue a certificate accordingly, and all certificates of enrolment and inspection shall be renewed annually in accordance with the regulations and upon payment of the prescribed fee.

6.—(1) The Board shall keep a register for the enrolment of stallions which register shall be kept in such form and shall contain such particulars, including the report of inspection, as may be prescribed by the regulations and the certificate shall be issued in accordance therewith.

(2) Every stallion shall be enrolled in the name of the owner at the time of the enrolment, and in case of a change of ownership the enrolment shall be deemed to be cancelled unless within thirty days thereafter evidence of the change of ownership satisfactory to the Board has been furnished to the Board, in which case a transfer certificate shall be issued by the Board.

(3) When a certificate of enrolment has been issued after the first day of August in any year the enrolment and certificate of enrolment and inspection of the stallion shall remain in force until the 31st day of December in the next succeeding year, and when the enrolment has been made before the first day of August in any year the enrolment and certificate thereof shall remain in force until the 31st day of December next following.

(4) When a stallion has reached the age of seven years the first inspection thereafter shall be the final inspection and the enrolment made on the report of such final inspection shall continue to form part of the enrolment and a certificate shall be granted in accordance therewith on each subsequent renewal of such enrolment.

(5) In the case of any other stallion the report of inspection shall be valid for two years only except as provided in subsection 3.

7. On and after the first day of August, 1916, no grade stallion having any of the diseases or malformations mentioned in the regulations passed in pursuance of this Act shall be allowed to stand, travel or be offered for service in the Province of Ontario and from and after that day no fees shall be collectible for the services of such stallion.

8. On and after the first day of August, 1918, no "grade stallion" as defined in the said regulations shall be allowed to stand, travel or be offered for service in the Province and, on and after such day, no fees shall be collectible for the services thereof.

9. In case of dissatisfaction the owner of any stallion may appeal to the Board from any inspection, and upon the owner depositing with the Board an amount sufficient in the opinion of the Board to cover the expenses of an additional inspection the Board shall direct a further inspection which shall be final.

10. The Board upon consideration of the report of the Committee and after the inspection of the papers supplied relating to the breeding and ownership of the stallion, and upon payment of the fee fixed by this Act, shall make such enrolment of the name, description and pedigree of the stallion in the register herein provided for as may be deemed warranted and shall issue a certificate in accordance with such enrolment to the owner of the stallion.

11.—(1) The certificate of enrolment and inspection of any stallion shall form a prominent part of any newspaper or other printed advertisement issued to advertise such stallion.

(2) Every poster issued shall contain a copy of the certificate of enrolment printed in bold face and conspicuous type and shall not contain any illustrations, pedigree or other matter which is untruthful or misleading.

(3) Where no posters are used to advertise a stallion, the owner of the stallion shall exhibit to the owner of each mare, at the time of service, if demanded, the original enrolment certificate issued for such stallion.

12.—(1) The fees to be paid to the Board before the issue of any certificate shall be:

For enrolment	\$2.00
For inspection	3.00
For renewal of enrolment	1.00
For transfer certificate .....	.50

(2) The fees received by the Board under this Act shall be paid over to the Treasurer of Ontario for the use of the Province.

13. The Board, subject to the approval of the Lieutenant-Governor in Council, may make such regulations as may be deemed proper and necessary for the better carrying out of the provisions of the Act.

14. Every person who is guilty of a contravention of any of the provisions of this Act shall incur a penalty of not less than \$25, nor more than \$100, recoverable under The Ontario Summary Convictions Act.

REGULATIONS PASSED UNDER THE AUTHORITY OF SECTION 14 OF "THE ONTARIO STALLION ACT"

1. Meetings at regular intervals may be arranged by the Board by resolution and shall be known as regular meetings. Special meetings of the Board may be held upon notice by letter addressed by the Secretary to the home address of each member of the Board and regularly posted in Toronto at least five days previous to the meeting. A meeting may be held at any time without notice where all the members of the Board are present or signify by letter their consent to the holding of such meeting.

2. At any meeting whether regular or special, three members shall form a quorum for the transaction of any business of the Board.

3. A chairman shall be appointed who shall have the right to vote on any question before the Board, and in case of a tie, shall have a second or casting vote.

4. Application for enrolment shall be made in such form as the Board may prescribe, said application shall be accompanied by the necessary fees.

(a) The following shall be included as part of the application: "In consideration of the certificate to be issued and delivered to me in pursuance of this application, I hereby agree that I will deliver the same up to the Board upon demand, and will, in case of a sale of the above named stallion, execute a transfer of the said stallion to the purchaser in the form prescribed by the Board and thereupon deliver the said certificate with said transfer so executed, to the Board or to the purchaser as the case may require. It is further agreed that the certificate shall always be the property of the Board and subject to their control and direction at any time."

5. A report shall be issued by the Board annually, showing the names and addresses of the owners of stallions enrolled, the number of stallions and such particulars regarding the stallion as the Board may decide upon, and such other matters as the Board consider advisable.

6. Each certificate shall be issued under the seal of the Board authenticated by the signatures of the Chairman and the Secretary, who are authorized to issue the same in accordance with the decisions of the Board.

7. In case of the transfer of a stallion a new certificate shall be issued in the name of the transferee, and except in cases of dispute as to ownership, the Chairman and Secretary are, where a transfer of ownership has taken place, authorized to issue new certificates without reference to the Board, provided the regulations of the Board dealing therewith have been complied with. If a dispute as to ownership arises subsequently to the issue of the new certificate, the Board may recall such new certificate.

8. The Board may appoint a Vice-Chairman, who during the absence of the Chairman shall have all the powers and perform all the duties of the Chairman.

9. Each certificate issued shall, as the case may require, be in one of the following forms:

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

APPROVED

Enrolment No.

FORM A 1

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the Stud Book as No.

Owned by of Foaled in

has been enrolled under THE ONTARIO STALLION ACT Inspected on the day of 19....., and found to be sound, of good conformation and an animal typical of the breed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman

Secretary

Dated at Toronto, Ontario, the day of 19.....

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

PASSED

Enrolment No.

FORM 1.

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the Stud Book as No.

Owned by of Foaled in

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the day of 19....., and Passed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman

Secretary

Dated at Toronto, Ontario, the day of 19.....

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

DEFECTIVE

Enrolment No.....

FORM 2

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the.....

Stud Book as No.....

Owned by.....of.....

Foaled in.....

has been enrolled under THE ONTARIO STALLION ACT Inspected on the.....day of.....

.....19....., and found to.....

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman.....Secretary.....

Dated at Toronto, Ontario, the.....day of.....19.....

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Enrolment No.....

Premium No.....

This is to Certify that the.....
Stallion.....
Registered in the.....
Stud Book as No..... Foaled in.....
Owned by.....
of

Recommended by the Premium Inspection Board as a
Premium Horse for the year 1918

.....Chairman

.....Secretary

10. After the first day of August, 1916, no certificates in form 4 shall be issued.

After the first day of August, 1918, no certificates in either form 3 or form 4 shall be issued.

11. For the purposes of this Act—

(a) A pure-bred stallion shall be considered to be one registered in one of the records affiliated with the Canadian National Live Stock Recorders, or in case there is no such record for the breed, in one of the records recognized as authentic by the Canadian National Live Stock Record Board.

(b) A grade shall be considered to be any other stallion.

12. The following shall be considered diseases or malformations, as the case may be, under these regulations: Bone spavin; curb, when associated with a formation of hock which predisposes to curb; bog spavin, when associated with a formation of hock which predisposes to bog spavin; ring bone; string-halt; side bone; roaring or whistling; periodic ophthalmia; navicular disease; and radical defect or defects or general defectiveness of conformation rendering the stallion unsuitable for use in the stud.

13. In the case of a pure-bred stallion of a breed for which there is a Canadian Record the Board shall as evidence of breeding and ownership require a certificate of registration issued by the Canadian National Live Stock Record Board showing the applicant for enrolment to be the recorded owner, and in the case of a pure-bred stallion of a breed for which there is no Canadian Record, a Certificate of Registration of a foreign record recognized as reliable by the Canadian National Live Stock Record Board, showing the applicant for enrolment to be the recorded owner. In the case, however, of certificates of such foreign records the Board may accept such evidence of ownership as to the Board seems proper. Provided that in case of a dispute as to ownership or if a vendor for any reason refuses or is unwilling or unable, or neglects to execute a proper transfer, the Board may accept such evidence of ownership as to it seems sufficient and issue a certificate accordingly.

14. In the case of grades, a signed statement shall be submitted to the Board by the owner, giving such information as he may be able to give regarding the breeding, and he must make a further statement that such information, to the best of his knowledge, is correct, and that he is the owner of the said stallion. In the case of a dispute as to ownership, the Board shall have power, upon such evidence as the Board may think proper, to determine the matter for the purpose of issuing the enrolment certificate.

15. The certificate issued by the Board shall be the property of the Board, and each applicant for a certificate of enrolment or transfer shall be required in his application to agree to surrender to the Board upon demand the certificate to be issued, and in case of the sale of the stallion mentioned in such certificate, to agree to sign a transfer to the purchaser in the form prescribed by the Board. The Board shall have such status and power as may be necessary to enforce such agreements in any court of competent jurisdiction.

16. The purchaser of an enrolled stallion shall, upon the sale, obtain from the vendor the certificate of enrolment and inspection with a transfer endorsed thereon in the prescribed form and signed by the vendor (who, if the law and these regulations have been complied with will be the owner according to the record of enrolment), and forthwith transmit the same to the Secretary of the Board. The Board will, upon receipt of the same, properly signed, issue a new certificate in the name of the purchaser.



17. The Seal, an impression of which appears in the margin hereof, shall be the Seal of the Board.

18. The Board may cancel any certificate of enrolment which has been issued by it upon representation subsequently proved to its satisfaction to have been incorrect.

19. A notice of the time and place of inspections may be given by advertisement in such local papers as may be designated by the Board in at least two issues thereof.

20. Each owner of a stallion shall transmit to the Secretary of the Board a copy of every poster or other advertisement issued or used for the purpose of advertising such stallion forthwith after the issue thereof. In default of compliance with this regulation, the Board may cancel any certificate issued for such stallion.

21. The Register of Enrolment shall be kept in a book and shall be in the form and contain the particulars indicated by the following form:

REGISTER OF ENROLMENT

File No.Enrolment No.....Breed

Name of Stallion.....Registration No.

Color.....Year of Birth

Inspected byDate.....

Report

Inspected byDate.....

Report

Inspected byDate.....

Report

Inspected byDate.....

Report

[illegible]

The Board may, from time to time, alter the above form, and vary or add to the above indicated particulars.

22. Notice of cancellation of a certificate shall be in writing, signed by the Secretary of the Board, and regularly posted in Toronto by registered post, addressed to the owner at his address, according to the record of enrolment, and cancellation, except as provided by section 6, subsection 2 of the Act, shall be deemed to take place at the end of the tenth day after the day upon which such notice was so posted.

23. Where a certificate is cancelled by reason of failure to comply with subsection 2 of section 6 of the Act, or for other cause, the Board may issue a new certificate to the owner upon his application.

24. All stallions imported to the Province shall be inspected within two months from date of arrival. Importers shall notify the Board immediately upon the arrival of importations, and the Board shall send inspectors to the stable of the importer or such other place as may be agreed upon within said two months from date of arrival.

25. (a) In case of necessity, where an application cannot be dealt with immediately by the Board, the Chairman and Secretary may issue an interim certificate, which shall be valid for all purposes under the Act, until the application is dealt with by the Board, and which shall be in the following form:

ONTARIO STALLION ENROLMENT BOARD

This is to certify that

of.....has applied for enrolment of the.....

Stallion.....and that such application is being considered

by the Board.

.....Secretary.Chairman.

Toronto,

.....19....

(b) Interim certificates may be issued for a certain specified time.

CANADIAN BOOKS OF RECORD

Name of Breed.	Book of Record.	Name of Association.
Clydesdale.....	Clydesdale Stud Book of Canada ..	Clydesdale Horse Association of Canada.
Hackney.....	Canadian Hackney Stud Book	Canadian Hackney Horse Society.
Shire.....	Canadian Shire Horse Stud Book ..	Canadian Shire Horse Association.
Percheron.....	Canadian Percheron Stud Book ..	Canadian Percheron Horse Breeders' Association.
Thoroughbred...	Canadian Thoroughbred Stud Book	Canadian Thoroughbred Horse Society.
Belgian Draft...	Canadian Belgian Draft Stud Book	Canadian Belgian Draft Horse Breeders' Association.
French-Canadian	French-Canadian Horse Breeders' Stud Book	French-Canadian Horse Breeders' Association of Canada.
Shetland, Welsh, New Forest, Polo and Riding, Exmoor and Hackney Ponies	Canadian Pony Stud Book	Canadian Pony Society.
French Coach...	Canadian French Coach Stud Book	Canadian French Coach Horse Breeders' Association.
Suffolk Horse...	Canadian Suffolk Horse Stud Book	Canadian Suffolk Horse Society.
Standard Bred.	Canadian Standard Bred Stud Book	Canadian Standard Bred Horse Society.

RECOGNIZED FOREIGN RECORDS FOR WHICH THERE IS NO CANADIAN ASSOCIATION

Name of Breed.	Book of Record.	Name of Association.
Cleveland Bay..	Cleveland Bay Stud Book	Cleveland Bay Horse Society of Great Britain and Ireland, Numthrope, R.S.O., England.
Yorkshire Coach	Yorkshire Coach Horse Stud Book.	Yorkshire Coach Horse Society of Great Britain and Ireland, Bolton Perdy, R.S.O., England.
Morgan.....	American Morgan Register	American Morgan Register Association, Middlebury, Vt., U.S.A.
Saddle Horse...	American Saddle Horse Register ..	American Saddle Horse Breeders' Association, Louisville, Ky., U.S.A.
German Coach..	Ostfriesisches Stutbuch	Landwirthschaftlichen, Hauptverein fur Ostfriesland, Norden, Germany.
	Stutbuch der Munsterlandisch-Oldenburgischen Geest	Zuchterband des Sudlichen Zuchtgebietes, Oldenburg, Germany.
Oldenburg.....	Oldenburger Stutbuch	Verband der Zuchter des Oldenburger elegaten schweren Kutschpferdes, Oldenburg, Germany.
Holstein Coach..	Gestutbuch der Holsteinischen Marschen	Verband der Pferdezuchter in den Holsteinischen Marschen, Holstein, Germany.
Hunter.....	Hunter Stud Book	Hunter's Improvement Society, 12 Hanover Square, London, Eng.

The above are the various Horse Associations, registration certificates from which are necessary before a stallion can be enrolled as a pure-bred.

Not only must the registration certificate from the above Associations be furnished, but the registration certificate must show that the person making application for the enrolment of a stallion is the recorded owner.

In buying a stallion, the buyer should make it one of the articles of agreement that the animal purchased shall be recorded in his (the buyer's) name in the stud book established for that particular breed of horse.

The fees charged by the various Horse Associations for the transfer of ownership in the Canadian National Live Stock Records at Ottawa are given below:—

	Member.	Non-Member.
Clydesdale	\$0 50	\$1 00
Hackney	1 00	2 00
Shire	0 50	0 50
Percheron	0 50	0 50
Thoroughbred	1 00	2 00
Belgian Draft	0 50	0 50
French-Canadian	0 25	0 50
Canadian Pony Society	0 50	0 50
French Coach	0 50	0 50
Suffolk	0 50	0 50
Standard Bred	0 50	1 00.

The reason that horses to be enrolled as pure-breds must be recorded in the name of the owner is to ensure the owners of mares that the certificate of service furnished by the stallion owner will be accepted by the Canadian National Live Stock Records at Ottawa when the owner of the mare makes application to register the progeny.

CANADIAN NATIONAL LIVE STOCK RECORDS

CLYDESDALE HORSE ASSOCIATION OF CANADA

Incorporated under the Act respecting Live Stock Record Associations at the Department of Agriculture, Ottawa, Canada.

APPLICATION FOR TRANSFER OF OWNERSHIP

I HEREBY CERTIFY, that on the.....day of.....191....
I sold to.....P.O.....
County.....Province.....the following described CLYDESDALE
Name of Animal.....Stud Book No. [.....]

I HEREBY AUTHORIZE the Transfer of Ownership as above on the Records of
THE CLYDESDALE HORSE ASSOCIATION OF CANADA.

Date of Delivery.....Signature of Seller.....

In case of death Legal Representative must sign.

N.B.—This application must be filled out in ink and at once forwarded, with necessary remittance, together with Certificate of Registration, to the Accountant, Canadian National Live Stock Records, Ottawa, Canada.

THE FOLLOWING ARE SAMPLES OF CANADIAN REGISTRATION, SERVICE
AND TRANSFER CERTIFICATES.

CANADIAN NATIONAL LIVE STOCK RECORDS

CLYDESDALE HORSE ASSOCIATION OF CANADA

Incorporated under the Act respecting Live Stock Record Associations at the Department of Agriculture,
Ottawa, Canada.

Certified Copy of Pedigree Recorded in the Clydesdale Stud Book of Canada

If a change of ownership occurs, this certificate with application for transfer and transfer fee should
immediately be forwarded to Record Office.

MACQUEEN (imp) [462] (5200)

Bay, white hind legs, grey fore legs, white on face;
foaled 15th May 1885. Bred by Peter Kerr, Bellamack,
Castle Douglas, Scotland, imported 1886 by and pro-
perty of Graham Bros., Claremont, Ont.

(See other side for transfer to next owner.)

{	SIRE	Macgregor (1487)	{	SIRE OF SIRE	Darnley (222)
			{	DAM OF SIRE	
{	DAM	Bet of Bellamack (5506)	{	SIRE OF DAM	Lothian Tam (1211)
			{	DAM OF DAM	



THIS IS TO CERTIFY that the above pedigree is on record in
volume Approved Typed by

For Minister of Agriculture.

Registrar.

OTTAWA, CANADA.

This slip, when pre-
sented with and attached
to the certificate, will be
authority for the agent
of the railway company
to waybill at the reduced
rates agreed to with the
Dominion Department of
Agriculture. This slip
must be detached from
the certificate by the
agent and forwarded
with the waybill.

CLYDESDALE R. R. SHIPPING VOUCHER No. 3.

Age.....

Name of Animal.....Certificate No.....

Signature of Shipper..... P.O.....

BELOW IS GIVEN, LIST OF STALLIONS WHICH HAVE RECEIVED PREMIUM
CERTIFICATE FOR THE YEAR 1918

Name of Horse.	Record No.	Breed.
Prince Blue	1315	Standard Bred.
Dunnottar (imp.)	13906	Clydesdale.
Merry Baron (imp.)	17284	Clydesdale.
Hofwart	2078	German Coach.
Isly (imp.)	3066	Percheron.
Scottish Gem (imp.)	12560	Clydesdale.
Dunure Lucky Star	15379	Clydesdale.
Kodi (imp.)	4462	Percheron.
Earl of Chester	930	Standard Bred.
Aurelian (imp.)	18325	Clydesdale.
Herminius (imp.)	14476	Clydesdale.
Dunure David (imp.)	13674	Clydesdale.
King Junior (imp.)	1068	Shire.
Belle Boy (imp.)	8524	Clydesdale.
Chief Guardian (imp.) ..	18267	Clydesdale.
Colorito	333	Hackney.
Royal Design	17286	Clydesdale.
Royal Favour	18361	Clydesdale.
Baron Arthur	18362	Clydesdale.
Lassis (imp.)	3920	Percheron.
Coveney Marmion (imp.) ..	329	Hackney.
King Norman (imp.)	17898	Clydesdale.
Craigie Baronet (imp.) ..	17599	Clydesdale.
Spartan (imp.)	509	Hackney.
Rosturtium	512	Thoroughbred.
Eastwood Todd	2034	Standard Bred.
Irade (imp.)	1641	Percheron.
Harvest Reaper	2533	Standard Bred.
Mais (imp.)	6056	Percheron.
Whitegate Pimple (imp.) .	806	Hackney.
Dandy	5542	Percheron.
De Wilton (imp.)	634	Hackney.
Baron's Court	18366	Clydesdale.
Sir James of Alton (imp.)	17283	Clydesdale.
Hartington (imp.)	19655	Clydesdale.
Peter Wilton	858	Standard Bred.
The Count of Hillcrest ..	15774	Clydesdale.
Black Gregor (imp.)	19658	Clydesdale.
Clarion (imp.)	15146	Clydesdale.
Baron Minto (imp.)	13980	Clydesdale.
Dunure Captain (imp.) ..	14126	Clydesdale.
Burt Axworthy	1845	Standard Bred.

SUMMARY OF ENROLLED HORSES FOR THE YEARS 1913-1918.

County.	1913		1914		1915		1916		1917		1918	
	Enrolled Horses.	Grades.	Enrolled Horses.	Grades.	Enrolled Horses	Grades.	Enrolled Horses.	Grades.	Enrolled Horses.	Grades.	Enrolled Horses.	Grades.
Brant	28	11	44	16	43	15	35	11	41	10	27	6
Bruce	103	35	114	41	99	28	91	30	95	21	93	17
Carleton	65	31	76	30	70	21	54	15	60	17	52	13
Dufferin	51	11	58	11	57	12	51	11	48	6	46	5
Dundas	44	19	41	22	43	18	38	16	29	10	16	3
Durham	60	18	63	14	67	14	52	8	47	3	42	1
Elgin	65	32	75	31	76	22	46	9	56	11	36	3
Essex	69	29	91	30	94	29	76	26	61	13	40	8
Frontenac	31	19	42	25	42	27	38	22	35	19	23	9
Glengarry	34	14	48	23	54	24	48	16	47	17	29	10
Grenville	37	21	32	16	28	13	21	8	27	9	20	8
Grey	108	25	121	29	118	26	94	19	87	14	79	11
Haldimand	47	24	50	21	54	20	50	16	38	13	32	9
Halton	27	7	29	6	25	5	32	8	30	5	23	7
Hastings	82	61	87	59	72	41	65	34	59	23	50	16
Huron	112	31	142	41	130	29	123	30	114	26	99	14
Kent	130	40	136	34	133	34	122	36	89	20	69	13
Lambton	113	25	134	40	126	29	108	24	88	16	71	12
Lanark	58	22	76	31	71	21	61	20	56	19	44	12
Leeds	50	32	52	31	40	23	25	13	25	12	19	6
Lennox & Addington	45	30	42	22	33	14	29	10	29	14	24	12
Lincoln	27	14	33	14	31	16	15	7	16	4	16	4
Middlesex	128	36	158	43	154	39	142	32	112	18	73	7
Norfolk	57	18	60	20	53	16	40	15	39	17	24	8
Northumberland	50	20	51	16	48	18	53	17	43	12	28	5
Ontario	101	16	108	21	124	25	96	12	95	12	80	5
Oxford	77	25	86	27	90	24	77	18	57	15	36	4
Peel	52	9	72	8	70	8	65	6	47	4	46	3
Perth	81	16	102	21	105	24	86	14	67	10	71	7
Peterboro	46	22	46	22	52	24	44	20	50	16	32	9
Prescott	46	34	57	39	42	29	37	25	27	14	20	9
Prince Edward	29	17	27	13	36	18	26	15	28	9	19	8
Renfrew	85	35	91	42	78	33	55	26	62	28	53	23
Russell	39	18	52	32	38	24	33	20	34	17	26	10
Simcoe	139	41	157	52	145	47	120	32	100	23	82	19
Stormont	32	18	35	18	27	14	23	14	23	16	20	11
Victoria	48	15	66	23	62	23	70	22	68	15	53	14
Waterloo	48	13	59	22	54	15	47	11	45	10	43	9
Welland	17	7	28	16	28	12	26	9	22	6	14	3
Wellington	104	26	117	27	115	30	87	17	82	16	68	16
Wentworth	50	25	60	27	56	17	35	9	30	10	22	4
York	119	25	148	29	157	27	135	20	121	16	101	13
New Ontario	12	3	16	5	120	67	129	75	110	57	127	72
Outside points	14	3	19	8	17	7	21	8	14	2	5	...
Totals	2,760	993	3,201	1,118	3,177	1,022	2,731	826	2,433	640	1,993	458
Percentage of Grades	36 %		34½ %		32 %		30 %		26 %		23 %	

SUMMARY FOR THE PROVINCE OF ONTARIO SHOWING BY COUNTIES THE
NUMBER OF THE DIFFERENT BREEDS OF STALLIONS ENROLLED
DURING 1918.

County.	Clyde.	Per.	Shire.	Bel. Dr.	Fr. Can.	Suff.	Stan. Br.	Thor.	Hack.	Fr. Ch.	Ger. Ch.	Ponies and Morgans.	Total of Pure Breds.	% of Pure Breds.	Grades.	Total Horses.
Brant	8	6	1	1	1		1	3					21	77.7	6	27
Bruce	42	13	2	3	1		10	1	2	1		1	76	81.7	17	93
Carleton	27	3		3	1		3	1	1				39	75.0	13	52
Dufferin	36	2					2	1					41	89.1	5	46
Dundas	7	3					1	2					13	81.2	3	16
Durham	30						4	5		1		1	41	97.6	1	42
Elgin	12	9	4	1	1		4	1		1			33	91.6	3	36
Essex	12	10	3				6	1					32	80.	8	40
Frontenac	3	5					6						14	60.9	9	23
Glengarry	10	5					2	2					19	65.5	10	29
Grenville	5	1	6										12	60.0	8	20
Grey	50	6		1			10	1					68	86.	11	79
Haldimand	11	6					4	2					23	71.9	9	32
Halton	4	6		1			4	1					16	69.5	7	23
Hastings	12	6			1		14	1					34	68.0	16	50
Huron	57	8	1				17	1	1				85	85.8	14	99
Kent	17	19	1				18					1	56	81.1	13	69
Lambton	37	4	4				14						59	83.1	12	71
Lanark	18	2	2	1			6	3					32	72.7	12	44
Leeds	6	3		1			3						13	68.4	6	19
Lennox & Addington	4	5					3						12	50.	12	24
Lincoln	6	1					5						12	75.	4	16
Middlesex	36	10					16	1	2		1		66	90.	7	73
Norfolk	5	8					1	1		1			16	66.6	8	24
Northumberland	12	0					3	2					23	82.1	5	28
Ontario	62						7	4					75	93.7	5	80
Oxford	19	9					3	1					32	88.8	4	36
Peel	25	7	2				4	2	2	1			43	93.4	3	46
Perth	43	6					12	2	1				64	90.1	7	71
Peterboro	14	7					1	1					23	71.9	9	32
Prescott	5	3	1	1			1						11	55.	9	20
Prince Edward	3	6					2						11	57.8	8	19
Renfrew	13	6	1				8	2					30	56.6	23	53
Russell	5	4	1				6						16	61.5	10	26
Simcoe	40	11	2				8	2					63	76.8	19	82
Stormont	5	3					1						9	45.	11	20
Victoria	30	3					5	1					39	73.5	14	53
Waterloo	19	6					7	1		1			34	79.	9	43
Welland	5	1	1				4						11	78.5	3	14
Wellington	59	7					2	2	2				51	76.3	16	68
Wentworth	7	5	1				3	1	1				18	80.9	4	22
York	53	11	2				11	9	2				88	87.1	13	101
New Ontario	28	18		1			6	1	1				55	43.3	72	127
Outside points	3						1					1	5	100.		5
	885	262	33	11	7	3	248	25	49	3	5	4	1,535	77.02	458	1,993

ENROLMENT BY COUNTIES.

BREEDS: Clydesdale. Hackney, Suffolk, Morgan, Shire, Percheron, Thoroughbred, Belgian Draft, French Coach, French-Canadian, Standard Bred, German Coach
ABBREVIATIONS: Clyde. Hack. Suff. Morg. Per. Thor. Bel. Dr. Fr. Ch. Fr. Can. St. Br. Gr. Ch.

BRANT COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Jauze (imp.)	3822	3841	Per.	4396	1909	N. Dymont	Brantford	F. 1916	1
Prince Arthur	....	240	Grade	441	1900	Thomas Robson	Brantford	S. 1914	3
Griffin	....	1383	Grade	2373	1907	F. R. Hanks	Brantford	S. 1915	3
Cholderton Prime Minister (imp.)	76	2801	Suff.	3313	1911	W. J. Roddick	Brantford	F. 1916	1*
Nutgrove Chieftain	19270	5210	Clyde.	5746	1915	E. R. Langs	Brantford (R.R. 1)	S. 1918	1
Royal Ardlethen	6902	3429	Clyde.	3883	1904	Miller & Millan	Brantford	S. 1915	1
Whitegate Royal George (imp.)	807	4314	Hack.	4906	1913	Miller & Millan	Brantford	F. 1917	1
Norwell Chieftain (imp.)	828	383	Shire	798	1908	George Allen	Burford	F. 1916	1
Absalon (imp.)	3727	2435	Per.	864	1901	J. S. Bawthinimer & Sons	Cainsville (R.R. 3)	F. 1912	1
Brant Glory	5524	5003	Per.	5487	1915	J. S. Bawthinimer & Sons	Cainsville (R.R. 3)	F. 1917	1
Wickbrino	....	3585	Grade	3017	1904	Lester M. Harley	Harley	F. 1914	3
Kairouan (imp.)	....	2953	Grade	3505	1910	Dan House	Middleport	F. 1916	3*
Briton	5978	727	Clyde	1110	1905	Thos. Herrod & Chas. Mathew	Middleport	S. 1915	1
Prince Erskine of Woodroffe	5246	538	Clyde	1332	1904	Thos. Matthews	Middleport	S. 1914	1
Warwick	615	4432	Hack.	4803	1909	Morgan E. Harris	Mohawk	S. 1916	1
Johnny Goldring	....	1863	Grade	2688	1907	Hiram S. Howey	Mohawk	F. 1914	3
Arbuteskan II.	....	3944	Grade	4477	1905	Thos. Bonney	Paris	S. 1915	3
Adbolton Premier	840	4717	Hack.	5145	1915	Wm. Carnegie	Paris	F. 1916	A1*
Boulder Grange du Fosteau	886	4960	Bel. Dr.	5408	1915	C. W. Gurney	Paris	S. 1917	1*
Enghten	675	395	Per.	381	1904	C. W. Gurney	Paris	F. 1912	1
Islam (imp.)	3031	1358	Per.	618	1908	Haas Brothers	Paris	S. 1915	1
Junior (imp.)	3824	2847	Per.	3399	1909	Haas Brothers	Paris	S. 1916	1
Victorius	18112	4927	Clyde.	5446	1915	H. Sborovsky	Paris (R.R. 4)	S. 1917	2*
Auld Lang Syne (imp.)	16066	3169	Clyde.	3693	1905	Geo. Stevenson	Paris Sta.	F. 1914	1
High Private	747	2933	St. Br.	3453	1907	Clemons Brothers	St. George	F. 1914	1
Baron's Charm (imp.)	9238	90	Clyde.	683	1903	J. J. Foran	St. George	F. 1912	1
Brant Charming	17662	4345	Clyde.	4767	1913	Rosebrugh & Osborne	St. George	F. 1917	1

BRUCE COUNTY.

Anchor's Pride (imp.)	15220	3206	Clyde.	3727	1907	Anthony Chebott	Allenford	F.	1914	1
Favori	.....	2246	Grade	1873	1901	Favori Syndicate	Company..Armow	F.	1914	3
Baron Royal (imp.)	3981	329	Clyde.	215	1900	Samuel McComb	Bervie	F.	1912	1
Cumberland's Glory (imp.)	15788	3614	Clyde.	3970	1911	James D. Campbell	Cargill	F.	1916	A1*
Ryecroft Model	12379	3376	Clyde.	3845	1910	Cargill Limited	Cargill	F.	1916	1*
Sylvi (imp.)	1350	319	Per.	128	1903	Geo. Bechburger	Chepstow	F.	1912	1
Royal Purse (imp.)	11857	91	Clyde.	686	1908	Walter Agnew	Chesley	F.	1917	A1
Mistletoe Mac	14501	3886	Clyde.	4158	1912	James Vancise	Chesley	F.	1916	1*
Kaplan	.....	637	Grade	693	1897	Albert Yager	Chesley	F.	1914	3
Silver Cloud (imp.)	8797	138	Clyde.	718	1905	Thomas Ferris	Dobbington	F.	1914	1
Full Fledge	.....	5103	Grade	4626	1911	August Mannerow	Dobbington	S.	1918	3
Lord Lowther (imp.)	8895	3328	Clyde.	3800	1900	Dan McNichol	Elmwood	F.	1914	1
Winsome King	11478	3327	Clyde.	114	1910	Dan McNichol	Elmwood	F.	1916	1*
Eel W.	.....	1538	Grade	2198	1907	Ephriam Rody	Elmwood	F.	1914	3
Knottingly Baronet (imp.)	988	647	Shire	687	1905	Manno Rody	Elmwood	F.	1914	1
Augustus	1095	4905	Bel. Dr.	5447	1914	Michael Graf	Formosa	S.	1917	1*
Harold G.	.....	2292	Grade	3027	1906	Archie J. Bell	Glamis	F.	1914	3
Earl Bickett (imp.)	12493	1916	Clyde.	1931	1909	Neil McClure	Glamis	F.	1916	1
Prince of Kirkside (imp.)	5883	12	Clyde.	244	1899	Anthony Symon	Glamis	F.	1912	1
Davie (imp.)	736	2827	Hack.	3151	1899	John Forsyth	Greenock	F.	1914	1
Gartly Baron	14625	1319	Clyde.	1879	1911	Andrew Good	Greenock	F.	1916	1*
Baron Hood (imp.)	8489	45	Clyde.	112	1900	Levi Good	Greenock	F.	1912	1
Chlordyne (imp.)	13547	353	Clyde.	335	1906	Levi Good	Greenock	F.	1914	1
Garnament (imp.)	22	82	Fr. Co.	472	1906	Levi Good	Greenock	F.	1914	1
Ichnobate (imp.)	3858	2875	Per.	3387	1908	Levi Good	Greenock	S.	1916	1
Mac Airies (imp.)	8266	2640	Clyde.	2120	1900	Levi Good	Greenock	F.	1914	1
Captain McKinney	1403	3473	St. Br.	105	1895	Charles Sewers	Greenock	F.	1912	1
King Brice	1683	3958	St. Br.	4163	1911	Charles Sewers	Greenock	S.	1917	1*
O. U. McKinney	1404	4542	St. Br.	4755	1913	Charles Sewers	Greenock	S.	1918	1
Bonnie Laird	10474	2662	Clyde.	167	1907	Primmer Brothers	Hepworth	F.	1914	1
Billie W.	.....	3227	Grade	3440	1909	James Walker	Hepworth	F.	1916	3
King's Selection	17780	4841	Clyde.	5399	1915	John T. Carruthers	Holyrood	S.	1917	1*
Diplomatist (imp.)	15278	3192	Clyde.	3632	1908	Charles Creech	Kincardine	S.	1917	1
Green Mountain Rifleman	5451	1287	Morgan	1501	1906	Ben. Elliott	Kincardine	F.	1914	1
General Cormier	4372	4654	Per.	5035	1914	Ben. Elliott	Kincardine	S.	1918	1

*Horse requires inspection.

BRUCE COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Don Roma	2393	4871	St. Br.	5395	1900	Wm. J. Graham and Jas. Kirkpatrick	Kincardine (R.R. 1)	S. 1917	1
Buchlyvie Mhor (imp.)	11300	2253	Clyde.	1710	1909	R. Robinson & Company	Kincardine	F. 1916	1
Sable Simmons		4531	Grade	5002	1898	Duncan E. Rowan	Kincardine	S. 1916	3
De Galifet		297	Grade	1385	1899	T. J. Bridge	Lion's Head	F. 1914	3
Panama (imp.)	1471	3188	Per.	205	1904	Joseph Hatt	Lion's Head	F. 1914	2
Puri		2165	Grade	1613	1901	Norman N. Smith	Lion's Head	S. 1913	3
Annandale (imp.)	7150	1055	Clyde.	860	1904	Albert Swanson	Lion's Head	F. 1912	1
Paddy S.		2298	Grade	2755	1905	Duncan McLean	Lorne	F. 1914	3
Promoter (imp.)	16335	3876	Clyde.	4256	1909	Kenneth Farrish	Lucknow	S. 1917	1
Cheery Worthy	1230	4614	St. Br.	4168	1910	Albert Millson	Lucknow	S. 1918	1
Our Choice	14696	822	Clyde.	1905	1910	Stuart E. Robertson	Lucknow	F. 1916	1*
Bay King Traveler	1351	3171	St. Br.	3700	1906	W. E. Henderson	Lucknow	F. 1914	1
Sir Walter's Best	4814	2368	Clyde.	2947	1904	William A. Taylor	Lucknow	F. 1914	1
Max	909	4204	Bel. Dr.	4681	1913	Anthony Strause	Mildmay	F. 1916	1*
Bonnie Lansdowne	20331	5008	Clyde.	5548	1916	W. S. Airth	North Bruce	S. 1918	1
Honest Sir Robert	19692	5005	Clyde.	5545	1915	William Howe	North Bruce	S. 1918	1
Kentucky Bill		990	Grade	1556	1910	J. H. Steffert	North Bruce	S. 1917	3
Heather Jock	458	1912	Thor.	2235	1901	William Rowand	Paisley	S. 1915	2
Fascinator (imp.)	13912	1147	Clyde.	2087	1910	W. J. Wilson	Pinkerton	F. 1916	1*
Baron Burgie		2130	Grade	2883	1911	William J. Craig	Port Elgin	F. 1916	3*
Malitor (imp.)	3849	3711	Per.	4247	1912	John W. Hopper	Port Elgin	F. 1916	1*
Jake of Fairfield (imp.)	11757	573	Clyde.	207	1909	David Jeffrey	Port Elgin	F. 1916	1
Gallant Carruchan (imp.)	8853	1535	Clyde.	1216	1902	David Campbell	Ripley	F. 1912	1
Spruce Hill	14202	3854	Clyde.	4446	1912	Jas. A. Harris	Ripley	F. 1916	1*
Lord Saxtony	2504	5043	St. Br.	5550	1907	W. W. Irwin	Ripley	S. 1918	1
Drumburle Again	16395	4104	Clyde.	4078	1913	Morgan & Cuthbertson	Ripley	F. 1916	1*
Avondale	787	4944	Hack.	5278	1914	S. W. Pollock	Ripley	S. 1917	1*
Slap Bang (imp.)	13935	351	Clyde.	333	1910	Malcolm Matheson	Ripley	F. 1916	1*
Popinjay (imp.)	11984	575	Clyde.	218	1909	Robert McTavish & Wylie	Ripley	F. 1916	1*
Fairfield Heir	19394	5004	Clyde.	5539	1916	Frederick C. Swinton	Southampton (R.R. 1)	F. 1916	1
Maple Crest Mine	11524	9	Clyde.	209	1910	Andrew Gammie	Tara	S. 1917	1
Pride of Arran	10212	11	Clyde.	208	1909	Andrew Gammie	Tara	S. 1917	1
Mograzia	155	2689	St. Br.	518	1903	James Herron	Tara (R.R. 5)	F. 1914	1
Baron's Luck (imp.)	5546	2711	Clyde.	3209	1904	Geo. Henderson	Tara	F. 1914	1
Scottish Blend	15657	4076	Clyde.	4625	1913	W. C. Herron	Tara (R.R. 2)	F. 1916	1*
Baron McIntyre	10098	4179	Clyde.	4657	1909	Edward Theaker	Tara	S. 1918	1

Leacastle Gay Boy (imp.)	873	2721	Shire	1496	1909	George Thompson	Tara	S.	1918	1
Cumberland Recruit (imp.)	13372	1972	Clyde.	2327	1909	George B. Armstrong	Teeswater (R.R. 1)	F.	1916	1
Kap Belsire		4641	Grade	4859	1913	Thos. O'Malley	Teeswater (R.R. 2)	F.	1917	3
Craigisla's Favourite	14286	4642	Clyde.	5020	1912	James Kenny	Teeswater	F.	1917	1
Baron Byron (imp.)	7744	677	Clyde.	104	1903	James Moffat	Teeswater	F.	1912	1
Prince Mark (imp.)	13370	676	Clyde.	103	1909	James Moffat	Teeswater	F.	1916	1
Dansire	1931	4383	St. Br.	4794	1913	Frank J. Steffler	Teeswater (R.R. 2)	F.	1917	1
Jeffrey		1018	Grade	1470	1910	Robert Kinmound	Tiverton	S.	1917	3
K. McGregor	2294	4872	St. Br.	5401	1912	Thos. G. Scott	Tiverton	S.	1917	1*
Institut (imp)	1336	688	Per.	115	1908	James B. Cahoon	Walkerton	F.	1916	1
Pacific Canadien	1474	4711	Fr. Can.	5244	1913	Henry Ernst	Walkerton	S.	1917	1*
Pink		2227	Grade	2169	1907	Henry Ernst	Walkerton	S.	1915	3
Lorraine (imp.)	4440	3702	Per.	4243	1911	A. G. Fortune	Walkerton	F.	1916	1*
Dick Magee	7850	5118	Per.	5596	1908	Irwin Brothers	Walkerton	S.	1918	1
Fred. Magee	7851	5117	Per.	5595	1913	Irwin Brothers	Walkerton	S.	1918	1
Jim Magee, Jr.	7852	5116	Per.	5594	1914	Irwin Brothers	Walkerton	S.	1918	1
Favorite	7123	5093	Per.	5601	1916	Irwin Brothers	Walkerton	S.	1918	1
Kossuth (imp.)	3003	1160	Per.	1630	1910	Irwin Brothers	Walkerton	F.	1916	1*
Leverant Duke	1418	5092	Bel. Dr.	5599	1914	Irwin Brothers	Walkerton	S.	1918	1
Midnight Oro		5106	Grade	5598		Irwin Brothers	Walkerton	S.	1918	3
Captain Hunter II.		175	Grade	974	1904	Burt Burbee	Wiarton	F.	1914	3
Heron (imp.)	1594	417	Per.	688	1907	John Speirs	Wiarton	F.	1914	1

CARLETON COUNTY.

Baron Parkhead	16467	5072	Clyde.	5515	1914	John F. Herrick	Arnprior	F.	1917	1
Last Word	14290	3719	Clyde.	4182	1912	Charles Dunlop	Billing's Bridge	F.	1916	1*
Zenobia		4940	Grade	5313	1905	M. Faulkner	Billing's Bridge	S.	1917	3
Adjutant	1194	5067	Bel. Dr.	5602	1914	Andrew Spratt	Billing's Bridge	S.	1918	1
Bayard de Corroy (imp.)	721	3283	Bel. Dr.	1296	1897	Andrew Spratt	Billing's Bridge	F.	1912	1
Joncy (imp.)	3035	2786	Per.	611	1909	Andrew Armstrong	Carp	F.	1916	1
Scottish Hero (imp.)	9251	3282	Clyde.	624	1904	C. Armstrong & Sons	Carp	F.	1912	1
Solon (imp.)	15426	4537	Clyde.	4984	1910	E. H. Graham & Son	Carp	S.	1918	A1
Royal Erskine (imp.)	13699	2848	Clyde.	3391	1911	Howard K. Hodgins	Carp	F.	1916	1*
Rosebank (imp.)	4100	1914	Clyde.	2053	1900	Parker Kennedy	Carp (R.R. 3)	F.	1914	1
Royal Montrose	8517	1657	Clyde.	2562	1905	W. J. Wilson	Carp	S.	1914	1
Lavis (imp.)	3897	2871	Per.	3298	1911	J. H. Skuce	Carsonby	F.	1917	A1
Koyama	8029	732	Clyde.	872	1906	F. H. Brisco, W. D. Tuffey & William Berry	Cobden	F.	1914	1

*Horse requires inspection.

CARLETON COUNTY - Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment. No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Golden West	482	4889	Hack.	5445	1908	J. H. Kennedy & Son	Corkery	S. 1917	1
King of Quality	6086	5097	Clyde.	5632	1904	Thos. H. Adams	Cumming's Bridge	S. 1918	1
Sir James McMaster	17490	4812	Clyde.	5325	1915	Horace C. Pinhey	Dunrobin	S. 1917	1*
Sir William Torrance	15572	4138	Clyde.	4610	1913	Horace C. Pinhey	Dunrobin	F. 1916	1*
Sir Donald Elrig	14956	4255	Clyde.	4721	1912	Ed. Whalen	Kars	F. 1916	1*
Borden 2nd	13013	1879	Clyde.	2705	1911	John Bidgood	Kinburn (R.R. 2)	F. 1916	2*
Carnegie 2nd	11143	3167	Clyde.	3639	1908	John Bidgood	Kinburn (R.R. 2)	S. 1918	2
Farmer .....	....	2341	Grade	3065	1910	Albert Hicks	Kinburn	F. 1916	3*
Blondin De Rouveroy (imp.)	660	3221	Bel. Dr. ...	3615	1910	Thos. Costello	Manotick	F. 1917	A1
Little Bobs	13368	2407	Clyde.	3126	1910	Norman J. McCormick	Marvelville	S. 1917	1
Dandy .....	....	2531	Grade	3119	1903	Robert Bell	North Gower	S. 1914	3
Hapathique (imp.)	1518	686	Per.	869	1907	G. E. Lewis	North Gower	F. 1917	A1
Baron Flashknot	15530	4146	Clyde.	4186	1913	James MacKey	North Gower	F. 1916	1*
The Trip	2529	5023	St. Br.	5565	1908	Antoine Leduc	Orleans	S. 1918	1
Benedictine (imp.)	14582	2858	Clyde.	3390	1911	Michael O'Brien	Osgoode Station	S. 1917	1*
King of Greely .....	....	3888	Grade	4474	1912	William O'Brien	Osgoode Station	S. 1917	3*
Tifty's Pride (imp.)	13820	3322	Clyde.	1159	1909	William K. Pyper	Osgoode Station	S. 1917	1
Harry .....	....	4713	Grade	5123	1913	Andrew Reardon	Osgoode Station	F. 1916	3*
Ben Darling .....	....	5040	Grade	4187	1912	Peter Wyatt	Osgoode Station	F. 1916	3*
Silver Band	13423	3750	Clyde.	4183	1911	Samuel Wyatt	Osgoode Station	F. 1916	1*
Calva	1419	5209	Fr. Can. ...	5708	1909	Wm. Cundell, 9 Heney Street, Ottawa	Osgoode Station	F. 1916	1
Prince Blue	1315	2932	St. Br.	3448	1912	M. H. W. Cameron	Ottawa	S. 1918	A1
Anmer (imp.)	874	4680	Thor.	5100	1910	Dominion Government	Ottawa	S. 1918	A1
Paul .....	....	991	Grade	1565	1900	W. J. Loughren	Ottawa	S. 1915	3
Wilkes Hal .....	....	3893	Grade	4313	1907	W. J. Loughren	Ottawa	S. 1915	3
Dunbar	18328	5029	Clyde.	5569	1916	B. Rothwell	Ottawa (R.R. 1)	S. 1918	1
Dunlevie	18331	5027	Clyde.	5567	1916	B. Rothwell	Ottawa (R.R. 1)	S. 1918	1
Dunnottar (imp.)	13906	2955	Clyde.	3403	1911	B. Rothwell	Ottawa (R.R. 1)	S. 1918	A1
Silver Chief	18327	5028	Clyde.	5568	1916	B. Rothwell	Ottawa (R.R. 1)	S. 1918	1
Spier Olcott .....	....	4682	Grade	2416	1910	F. A. Tracey	Ottawa	F. 1916	3*
Jolly Chimes .....	....	4297	Grade	4827	1913	John W. Buchanan	Richmond	F. 1917	3
Lord Kintore (imp.)	8451	358	Clyde.	374	1906	Thomas Burke	South March	S. 1915	1
Duke of Kenmore	9638	413	Clyde.	672	1909	Howard H. McCoy	Stanley's Corners	F. 1916	1
Young Rosebank .....	....	2769	Grade	669	1906	Joseph Lewis	Stittsville	F. 1914	3
Young Baron Elrig .....	....	4274	Grade	4724	1913	Harold Spearman Estate	Stittsville	F. 1916	3*
Laurentian Boy	2409	4900	St. Br.	5349	1914	R. A. Watchorn	Stittsville	S. 1917	1*

On Guard's Baron	16861	4424	Clyde.	.....4834	1914	D. J. Kennedy	.....Vernon	F. 1917	1
Prince of Huntley	7741	836	Clyde.	.....1719	1907	S. T. Smith	.....Woodlawn	F. 1914	1
Roy Harbour	....	5199	Grade	.....5673	1916	T. E. Dolan	.....Woodlawn	S. 1918	3
DUFFERIN COUNTY.									
Cower Chief (imp.)	13818	783	Clyde.	.....1141	1909	Geo. E. Wilson	.....Belwood	F. 1916	2
Jim Brown	18966	5181	Clyde.	.....5682	1916	Robt. B. Oldfield	.....Corbetton	S. 1918	2
Robert Joe	....	1502	Grade	.....1057	1898	A. & E. Colley	.....Corbetton	F. 1912	3
Napoleon Bonaparte	....	640	Grade	.....460	1903	Irad Allen	.....Glen Cross	F. 1912	3
Montrave Baronet	17021	5002	Clyde.	.....5494	1914	Robt. McCutcheon	.....Glen Cross	F. 1917	1
Prince Marlon	15073	4374	Clyde.	.....4336	1911	Thos. McFadden	.....Glen Cross	F. 1917	2
Loyal Héro (imp.)	9715	770	Clyde.	.....1456	1907	Geo. Clayton & Son	.....Grand Valley	F. 1917	A1
Tom McNab	9800	1067	Clyde.	.....442	1904	William Clayton	.....Grand Valley	F. 1917	A1
Montrave Wilton	18009	5162	Clyde.	.....5652	1914	Jas. & Thos. Greenwood	.....Grand Valley	S. 1918	1
Linton Again	18098	3260	Clyde.	.....3747	1910	Wm. Martin Estate	.....Grand Valley	F. 1916	1*
Birchburn	16409	3869	Clyde.	.....4220	1912	Geo. Mournaham	.....Grand Valley	F. 1916	A1*
Glendale Count (imp.)	15193	3124	Clyde.	.....3666	1911	S. T. & J. H. Platt	.....Grand Valley	F. 1916	1*
Scottish Moncreiffe	14169	4506	Clyde.	.....4402	1912	M. C. Ward	.....Grand Valley	F. 1916	1*
Sir Manuel (imp.)	13754	716	Clyde.	.....1250	1908	John Lee & Wilson Irwin	.....Hockley	F. 1916	1
Everest Again (imp.)	9170	1173	Clyde.	.....508	1906	Thos. Dunseath	.....Honeywood	F. 1914	1
Frank Harmony	8069	3530	Clyde.	.....3937	1905	David A. Keast	.....Jessopville	S. 1918	1
Harfang (imp.)	3193	2065	Per.	.....2639	1907	James H. Bell	.....Laurel	F. 1914	1
Baron Northland	17848	4943	Clyde.	.....5253	1915	W. F. Cooney	.....Laurel	S. 1917	1*
Albion (imp.)	14453	1478	Clyde.	.....2365	1910	George Hepton	.....Laurel	F. 1916	1*
Young Champion	....	124	Grade	.....544	1909	W. E. Smith	.....Laurel	S. 1917	3
Tom Miln	18774	4763	Clyde.	.....5279	1914	John Greenaway	.....Orton	S. 1917	1*
Mario (imp.)	4282	3051	Clyde.	.....2343	1901	J. E. Ferris	.....Mansfield	S. 1915	1
Prince of Cardow	12030	379	Clyde.	.....540	1909	R. J. Ormsby	.....Mansfield (R.R. 1)	F. 1916	1
Montrave Max	12804	1723	Clyde.	.....2489	1910	John Donkin	.....Melanethon (R.R. 2)	S. 1917	1
Royal Tower (imp.)	14499	2902	Clyde.	.....3454	1911	Ernest & Norman Ferrier	.....Melanethon	F. 1916	1*
Baron Dufferin	18416	4783	Clyde.	.....5301	1914	J. B. Murdy	.....Melanethon	S. 1917	1*
Bessboro' Freeman (imp.)	9931	446	Clyde.	.....912	1907	R. Switzer & P. Contlen	.....Monticello	F. 1914	1
Flashwood Chief	18635	4758	Clyde.	.....5170	1914	Alexander Ward	.....Monticello	F. 1916	1*
Golden Ball (imp.)	13286	1113	Clyde.	.....1211	1908	John S. Graham	.....Orangeville	F. 1916	1
Gladstone Mack	5514	2181	Clyde.	.....2861	1905	John Kannawin	.....Orangeville	S. 1915	1
King Alfred	10873	396	Clyde.	.....1365	1910	Geo. I. Nodwell	.....Orangeville	F. 1916	1*
Todd Bell	1695	4011	St. Br.	.....4376	1912	T. C. Peavoy	.....Orangeville	F. 1916	2*
Great Times	15407	4377	Clyde.	.....4750	1913	J. B. McNichol	.....Orangeville	F. 1917	1
Wild Brino King	....	4229	Grade	.....4695	1902	J. B. McNichol	.....Orangeville	S. 1915	3

*Horse requires inspection.

DUFFERIN COUNTY — Continued.

Name of Stallion.	Can. Rec. No.	Enrol- ment. No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Kirminnock Mac (imp.)	12122	1933	Clyde.	657	1908	Nathaniel Thompson	Orangeville	F. 1916	1
Prince of Maryfield (imp.)	6095	3554	Clyde.	3889	1901	John Suggitt	Orangeville	F. 1914	1
Eden		5169	Grade	5683	1910	Peter Wilson	Orangeville	S. 1918	3
Montrave Viceroy	12805	1487	Clyde.	533	1910	James R. Gibson	Orton	F. 1916	1*
Jim Direct	1707	4148	St. Br.	4118	1912	G. Fletcher	Rosemont	F. 1916	1*
Northern Light (imp.)	13909	803	Clyde.	1825	1909	Wm. Thompson	Rosemont	F. 1916	1
Jeannin (imp.)	3074	3248	Per.	3741	1909	Wm. Thompson	Rosemont	F. 1916	1
Proton Fancy	18683	5170	Clyde.	5691	1916	Jas. H. Banks	Riverview	S. 1918	1
Antillo Jr.		288	Grade	1350	1907	R. H. Galbraith	Shelburne	S. 1915	3
Baron Columbus (imp.)	6106	749	Clyde.	530	1905	John Mowat	Shelburne	F. 1914	1
Tissington Playmate	289	5115	Hack.	2119	1904	John Mowat	Shelburne	S. 1918	1
Baron Again	12836	2508	Clyde.	3170	1911	William Ritchie	Shelburne	F. 1916	1*
Pride of Amaranth	14791	1170	Clyde.	916	1910	Nelson Teeter	Waldemar	F. 1916	1*

DUNDAS COUNTY.

Outlaw (imp.)	602	386	Hack.	794	1909	Henry Hanson	Brinston	F. 1916	1
Black Charley		1554	Grade	2297	1907	Patrick Mullen	Brinston	S. 1916	3
A Night Rider	1346	3788	St. Br.	4319	1907	T. J. Ellis	Chesterville	S. 1915	1
Black Guard	16931	4902	Clyde.	5360	1914	Alex. B. McConnell	Chesterville	S. 1917	1*
Laddie Guard	18625	5022	Clyde.	5514	1915	Alex. B. McConnell	Chesterville	F. 1917	1
Richorn Prince (imp.)	11791	2813	Clyde.	3348	1908	Norman G. Moodie	Chesterville	F. 1916	1
Scottish Ring (imp.)	13852	4625	Clyde.	5068	1910	Calvin Munro	Chesterville	F. 1917	1
Sir James P. Whitney	19173	4874	Clyde.	4209	1913	Ira Ennis	Inkerman	S. 1917	1*
Prince Logan	7180	2167	Clyde.	2924	1905	D. C. Mulloy	Inkerman	S. 1915	1
Herculoid	3108	3722	Per.	4222	1912	J. A. McLeod	Morewood	F. 1916	1*
Dalton King 3rd	809	4999	Hack.	5489	1915	J. Wesley Allison	Morrisburg	F. 1917	1
Silver Boy		218	Grade	932	1904	I. J. Pitts	Williamsburg	F. 1912	3
Farmer Boy		622	Grade	836	1904	Geo. S. Prunner	Williamsburg	F. 1912	3
Hantan (imp.)	1521	429	Per.	796	1907	Williamsburg Percheron Horse Association	Williamsburg	F. 1914	1
Scotch Hero	17125	4360	Clyde.	4448	1913	Milton Coons	Winchester	F. 1917	1
Grenadier	3997	4922	Per.	5268	1913	Kenneth E. Hutt	Winchester	S. 1917	1*

DURHAM COUNTY.

Derwent Pride	15957	4457	Clyde.	.....4867	1913	F. H. Ward	.....Bethany	.....F. 1917	1
Royal Derwent	18677	4784	Clyde.	.....5303	1914	F. H. Ward	.....Bethany	.....S. 1917	1*
Antevolo Rysdyk	51	1525	St. Br.	.....2103	1910	S. A. Devitt	.....Blackstock	.....F. 1916	1*
Royal Montrave	18638	4856	Clyde.	.....5310	1914	W. C. Ashton	.....Bowmanville	.....S. 1917	1*
Baron's Best (imp.)	13930	603	Clyde.	.....439	1901	Robert Beith	.....Bowmanville	.....F. 1917	A1
Mainspring	721	2821	Hack.	.....3352	1911	Robert Beith	.....Bowmanville	.....F. 1916	1*
Terrington Cetewayo (imp.)	401	601	Hack.	.....437	1905	Robert Beith	.....Bowmanville	.....F. 1914	1
Tipperary	826	4828	Hack.	.....5240	1914	Robert Beith	.....Bowmanville	.....F. 1916	1*
Waverley Baron	18013	4822	Clyde.	.....5083	1914	Robert Beith	.....Bowmanville	.....F. 1916	1*
Montrave Imperialist (imp.)	12646	649	Clyde.	.....720	1908	R. M. Cale	.....Bowmanville	.....F. 1916	2
King's Lynn (imp.)	10743	2280	Clyde.	.....2220	1904	Chester Power	.....Bowmanville	.....F. 1914	1
Eastfield Charles	19762	5079	Clyde.	.....5629	1915	W. G. Ormiston	.....Burketon	.....S. 1918	1
Thoor Patch	640	3940	St. Br.	.....4328	1911	S. J. McMillan	.....Campbellcroft	.....S. 1917	1*
Pride of Balmyre (imp.)	9753	2484	Clyde.	.....3177	1906	Rupert Winslow	.....Cavan	.....S. 1915	1
Black Model	16880	4811	Clyde.	.....5315	1914	J. W. Lowes	.....Cavan	.....S. 1917	1*
Dunure Beaulieu (imp.)	12681	845	Clyde.	.....1741	1910	J. W. Lowes	.....Cavan	.....S. 1917	1
Attractive Tom (imp.)	8438	705	Clyde.	.....1064	1908	Melville H. Staples	.....Cavan	.....F. 1916	1
Royal Ribbon (imp.)	13932	602	Clyde.	.....438	1910	Clydesdale Horse Breeders' Association	.....Darlington	.....F. 1916	2*
Joe Gleam	16716	3729	Clyde.	.....4261	1912	A. W. Wilson	.....Franklin	.....F. 1916	1*
Terrington Denmark	774	3959	Hack.	.....4489	1912	A. W. Wilson	.....Franklin	.....S. 1917	1*
Mahratta (imp.)	13374	1450	Clyde.	.....2218	1907	Richard Wilson	.....Franklin	.....F. 1914	1
Lewie Gordon	.....	171	Grade	.....977	1897	P. Francis	.....Fraserville	.....F. 1914	3
Prince Palatine (imp.)	15907	3432	Clyde.	.....3887	1910	Grandy Brothers	.....Ida	.....F. 1916	1*
Chaiseley Admiration (imp.)	323	1051	Hack.	.....1063	1905	J. F. Staples	.....Ida	.....F. 1914	1
Golden Dawn	15704	4445	Clyde.	.....4964	1913	J. F. Staples	.....Ida	.....F. 1917	1
Golden Gleam (imp.)	8783	64	Clyde.	.....1065	1900	J. F. Staples	.....Ida	.....F. 1912	1
King's Champion (imp.)	13174	343	Clyde.	.....280	1903	J. F. Staples	.....Ida	.....F. 1917	A1
Marquis Freeland	16402	4726	Clyde.	.....4240	1912	Hugh McGill	.....Janetville	.....F. 1916	2*
Anagram (imp.)	13825	2279	Clyde.	.....1143	1911	McIntyre Thornton	.....Janetville	.....F. 1916	1*
Alois	5277	1996	Gr. Co.	.....2707	1907	J. D. Deyell & H. Nattress	.....Millbrook	.....F. 1914	1
Sir David Junior	14458	483	Clyde.	.....760	1909	John Hutchinson	.....Millbrook	.....F. 1916	1
Dunure Baron (imp.)	6150	1262	Clyde.	.....2055	1903	Patterson Brothers	.....Millbrook	.....F. 1914	1
Merry Baron (imp.)	17284	4475	Clyde.	.....4969	1912	Patterson Brothers	.....Millbrook	.....F. 1917	A1
Golden Taylor	18599	4793	Clyde.	.....5326	1915	George H. Hooton	.....Mount Pleasant	.....S. 1917	1*
Baron Polwarth (imp.)	11298	365	Clyde.	.....435	1908	James A. Rowan	.....Nestleton Sta.	.....F. 1916	2
Lord Spencer (imp.)	13287	926	Clyde.	.....261	1908	Jamieson & Dwyer	.....Newcastle	.....F. 1916	2
Acme Prince 2nd	16735	4452	Clyde.	.....4769	1913	Cyrus R. Hart	.....Omeme	.....F. 1917	1

*Horse requires inspection.

DURHAM COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Dolphington (imp.)	9762	2059	Clyde.	2473	1907	Albert Holmes	Pontypool	F. 1914	1
Geenavon	11467	3166	Clyde.	3427	1907	Wm. Lingard	Port Hope	S. 1916	1
Proud Gambler	1715	3471	St. Br.	3888	1901	M. F. Chalk	Port Hope, Box 115	F. 1914	1
King Sable	961	1939	St. Br.	433	1902	Hugh McGill	Yelverton	F. 1912	1

ELGIN COUNTY.

Norfolk Performer	131	1573	Hack.	89	1901	Andrew Smith	Aylmer	F. 1912	1
Sidmont Sprague	1178	3579	St. Br.	476	1901	C. J. Weisbrod & Co.	Aylmer	F. 1912	1
Major 19th (imp.)	705	3027	Shire	3016	1903	W. G. White	Aylmer	F. 1914	2
Mouchoir (imp.)	4725	3913	Per.	4342	1912	John Buchanan	Campbellton	F. 1916	1*
Submarine Prince	19271	4891	Clyde.	5150	1915	Alex. G. Duncanson	Dutton	F. 1916	1*
Tupelo 2nd	...	2162	Grade	2904	1910	A. D. McKellar	Dutton	F. 1916	3*
Kuroki 2nd (imp.)	626	3640	Shire	3247	1902	John McVannel	Dutton	F. 1914	1
Kingling	6744	5129	Per.	5629	1915	W. A. Sloan	Fingal	F. 1917	1
Elect Winters	1001	1982	St. Br.	482	1907	W. A. Sloan	Fingal	S. 1915	1
Mimulus (imp.)	10681	1279	Clyde.	2167	1907	W. A. Sloan	Fingal	F. 1914	1
Elgin Pride	19919	5201	Clyde.	5709	1916	Alex. MacLachlin	Iona Sta. (R.R. 1)	S. 1918	1
Pride of Huron	12124	2960	Clyde.	3134	1909	J. C. Burke	Lawrence Station	F. 1916	1
Jasper of Walnut Grove (imp.)	573	95	Shire	698	1908	Andrew A. Miller	Middlemarch	F. 1916	1
Klaustral (imp.)	4469	3989	Per.	4080	1910	F. Dunsford	New Sarum	F. 1916	1*
Snowflake	...	201	Grade	474	1907	Verlin Tisdale	Orwell	F. 1914	3
Laharpe (imp.)	4459	3892	Per.	4059	1911	James Brackenbury	Port Burwell	F. 1916	1*
Hofwart	2078	862	Gr. Co.	473	1907	Frank A. Smith	Port Burwell	F. 1917	A1
Dr. Ames	895	1140	St. Br.	426	1902	G. A. Van Order	Port Burwell	F. 1914	1
Kozan (imp.)	3855	2870	Per.	3385	1910	C. E. Glasgow	Port Stanley	F. 1917	1
Black Duke	11736	143	Clyde.	748	1907	Robert Liddle	Rodney	S. 1915	1
Glenlea Pride	17844	4447	Clyde.	4933	1913	John McLean & Son	Rodney	F. 1917	2
Revelanta Stamp (imp.)	11584	648	Clyde.	702	1908	J. P. & R. J. Spence	Rodney (R.R. 2)	F. 1916	1
Leamside (imp.)	5015	2281	Clyde.	1960	1903	Chas. E. Holborn	Shedden	F. 1914	2
Tyrolien (imp.)	3615	2066	Per.	2641	1900	Hallum Keiller	Shedden	F. 1914	2
Kinglymoore	1686	2319	St. Br.	2902	1899	Frank Comfort	Shedden	F. 1914	1
Cardyke Prince (imp.)	...	2738	Grade	3011	1903	Colin A. McPhail	Shedden	F. 1914	3
Baron Scott (imp.)	12527	1834	Clyde.	160	1903	E. A. Stafford	Shedden	F. 1912	1
Tinto	4534	4808	Per.	5251	1914	James Parish	St. Thomas	S. 1918	1
Butley Major (imp.)	32	1794	Suff.	2166	1908	Frank Leach	St. Thomas	S. 1918	1

Arlon (imp.)	62	1915	Bel. Dr.	2026	1907	George Tupper	Tillsonburg	F. 1914	1
Prince William	8295	1909	Clyde.	787	1906	Geo. W. Teall	Vienna	S. 1914	1
Chester Charming	13367	2443	Clyde.	2690	1906	James McMullen	Wallacetown	F. 1914	1
Gerlcault	3513	3187	Per.	3370	1912	Geo. B. O'Malley	Wallacetown	S. 1918	1
Irish Jack	773	2436	Per.	36	1908	Geo. B. O'Malley	Wallacetown	S. 1915	1
Baron Blend	11276	1596	Clyde.	1764	1909	W. Monteith	West Lorne	S. 1917	1
Tuttle Brook Lad	1234	5110	Shire	5644	1915	Albert Schleilauf	West Lornè	S. 1918	2

ESSEX COUNTY.

Rustywood	3709	Grade	.....	4026	1897	Theodore Langlois	Amherstburg	F. 1914	3
Arner's Coquette	1746	Grade	.....	2608	1908	John Arner	Arner	S. 1917	3
Robbie Burns	1880	Clyde.	.....	2702	1909	Charles Corbett	Belle River	S. 1917	1
Frank	1749	Grade	.....	2599	1911	Remi Dauphinas	Belle River	F. 1916	3*
Keir Jimmie	3086	Clyde.	.....	3617	1911	David Coulter	Blytheswood	F. 1916	1*
Isaac P.	349	Per.	.....	304	1909	W. J. Fox	Blytheswood	F. 1916	1
Wilbur (imp.)	2417	Bel. Dr.	....	1756	1908	Canard River Horse Breeders' Association	Canard River	S. 1915	1
Doctor Highwood	3948	St. Br.	.....	4491	1907	William Prendergast	Comber	S. 1915	1
Black Ore	1726	St. Br.	.....	2471	1905	R. J. Goslin & Son	Cottam	F. 1914	2
Bob Bennett	3698	Per.	.....	4000	1912	R. J. Goslin & Son	Cottam	F. 1916	2*
Frederic	815	Per.	.....	1880	1906	R. J. Goslin & Son	Cottam	S. 1914	1
Jerry	305	Grade	.....	1466	1908	Wm. J. Lapain	Essex	F. 1916	3
Keir Democrat (imp.)	62	Clyde.	.....	1090	1901	R. B. Pinkerton	Essex	F. 1912	1
Sir Marcus (imp.)	3336	Clyde.	.....	3785	1903	R. B. Pinkerton	Essex	F. 1914	1
Mayor	3625	Per.	.....	3532	1910	C. E. Forman	Harrow	F. 1916	1*
Rodrique Jr.	3624	Per.	.....	3518	1908	C. Forman	Harrow	F. 1916	1
Bricanam	5062	Per.	.....	5527	1915	J. Leroy Allen	Kingsville	F. 1917	1
Fendlair (imp.)	3397	Per.	.....	3156	1904	Thomas Clark	Kingsville	F. 1914	1
Toney Boy	1266	Per.	.....	2035	1910	Edward Hickmott	Kingsville	F. 1916	1*
Prince Albert	3275	Per.	.....	3750	1910	Christian Johnson	Kingsville	F. 1916	1*
Bay Jocko	2037	St. Br.	.....	2803	1907	John Lampman	Kingsville	S. 1915	1
Roliere	5120	Per.	.....	5657	1916	Lambert P. Wigle	Kingsville	S. 1918	A1
Star Pointer Jr.	1032	Grade	.....	305	1905	Lewis Wigle	Leamington	F. 1914	3
Witcham Adonis (imp.)	3199	Hack.	.....	302	1903	Lewis Wigle	Leamington	F. 1914	1
Celtic Park	3663	Clyde.	.....	4110	1912	Thos. Barnes & Son	Maidstone	F. 1916	1*
Tony B.	4762	Grade	.....	5265	1914	Samuel G. Brundage	Maidstone	S. 1917	3*
Gallant Clyde	3721	Clyde.	.....	4109	1912	Thos. Phillips	Maidstone	F. 1916	1*
Keir Democrat 2nd	4523	Clyde.	.....	4148	1912	James Charette	McGregor	F. 1916	1*

*Horse requires inspection.

ESSEX COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Royal Arch .....	.....	3039	Grade	3586	1910	Frank Charette	New Canaan	F. 1916	3*
Lord Lochinvar	18741	4743	Clyde.	5148	1914	John D. Hill	Ruscomb Station	F. 1916	1*
Fred Steele	1427	3253	St. Br.	3644	1910	W. W. Hill	Ruscomb	F. 1916	1*
Tullock Again	14284	4667	Clyde.	5094	1912	Adam Knister	Ruscomb	F. 1917	1
Van Birr	11664	1683	Clyde.	2243	1910	Gordon Cowan	Staples	F. 1916	1*
Carnot De Gemel (imp.)	164	909	Bel. Dr. ...	1290	1905	J. B. Lalonde	Stoney Point	F. 1914	1
Carnot De Gemel Jr.	968	4665	Bel. Dr. ...	5093	1913	J. B. Lalonde	Stoney Point	F. 1917	1
Wild Bars .....	.....	2488	Grade	1929	1900	Oliver Bruseau	Tilbury	S. 1913	3
Baron Mansfield (imp.)	11466	4094	Clyde.	1930	1908	Arthur Holmes	Tilbury	F. 1916	2
Dolphie Brino	2292	4703	St. Br.	5158	1913	Alex. Trudell	Tilbury	F. 1916	1*
Dan Sphinx	1689	3215	St. Br.	395	1902	W. H. Bond	Walkerville	F. 1914	1
Dominion Boy	4983	3637	Clyde.	1557	1902	Charles Manchester	Woodstee	S. 1915	1

FRONTENAC COUNTY.

Wildwing	760	1084	St. Br.	1506	1911	John Williams	Battersea	F. 1916	1*
Prince Charlie	10475	394	Clyde.	584	1908	Samuel Shanks	Cananto	F. 1916	1
Young Foxhunter .....	.....	2859	Grade	3336	1901	Isaac Bushell	Cataraqui	S. 1914	3
Norman Royal Jr. ....	.....	1025	Grade	1505	1905	John Truedell	Collin's Bay	F. 1914	3
Chief Autocrat	16470	4997	Clyde.	5059	1914	Jacob E. Shibley & Son	Harrowsmith	F. 1917	1
Farmer's Pride	3392	2777	Per.	3102	1906	John Alarie	Kingston	S. 1914	1
Lord Direct .....	.....	1034	Grade	307	1906	Wm. Drury	Kingston	F. 1914	3
Colonel	3476	2763	Per.	2099	1907	Lewis Martin	Kingston	S. 1915	2
Victor Forbes	2544	2576	St. Br.	3199	1910	Thos. K. Nickelson	Kingston	F. 1916	1*
Prince Harmony .....	.....	578	Grade	236	1904	William Patterson	Kingston	F. 1912	3
Penalty	1970	4299	St. Br.	4890	1911	W. C. Randall	Kingston	F. 1917	1
Exaltim	758	3300	St. Br.	3787	1910	E. S. Steen	Kingston	F. 1916	1*
Aberlady 2nd	11291	50	Clyde.	235	1910	Wm. H. Gollogly	Kingston Mills	F. 1916	1*
Judge Murphy	1029	2267	St. Br.	315	1908	Fred. Whitney	Kingston	F. 1916	1
Justin (imp.)	3057	1085	Per.	1568	1909	W. W. Asseltine & Co.	Moscow	F. 1916	1
Dock Direct .....	.....	4549	Grade	4941	1913	Walter Hegadorn	Odessa	F. 1917	3
Young Wattle .....	.....	505	Grade	1165	1907	Oliver R. Clow	Parham	F. 1914	3
Allen Direct .....	.....	4547	Grade	370	1906	E. K. Neadow	Parham	S. 1916	3
Kabot (imp.)	3001	521	Per.	557	1910	The Storrington Stock Co.	Sunbury	F. 1916	1*

Capton Porther	253	Grade	664	1906	D. S. Hannah	Tichborne	F. 1914	3
Royal Major	184	Grade	383	1908	T. L. Reynolds	Verona	F. 1916	3
Amardale	4569	St. Br.	5044	1913	Oliver Hawkins	Wolfe Island	F. 1917	1
Beauchemier	4544	Per.	4943	1913	Geo. E. Keys	Wolfe Island	F. 1917	2

GLENGARRY COUNTY.

Del Monte Bond	736	St. Br.	2479	1906	N. M. Bellamy	Alexandria	F. 1914	1
Joigny (imp.)	2820	Per.	1676	1909	M. Fitzgerald & J. Kerr	Alexandria	F. 1916	1
Silver Joe	...	Grade	2519	1905	I. B. Sauve	Alexandria	F. 1914	3
Nigger	...	Grade	3445	1910	Moses Beauchamp	Dalhousie Mills	F. 1916	3*
Peter Chicken	2275	St. Br.	5296	1911	Ranger Brothers	Dalhousie Mills	S. 1917	1*
MacLeod	7213	Clyde.	3516	1905	Emmanuel Brunet	Dalkeith	F. 1914	1*
Craigie Ian (imp.)	15247	Clyde.	3745	1911	D. A. McGillivray	Dalkeith	F. 1916	1*
Aberdeen's Pride	13503	Clyde.	3553	1911	Geo. N. Vogan	Dalkeith	F. 1916	1*
Castle Baron (imp.)	6127	Clyde.	1911	1904	William MacLeod	Dunvegan	F. 1914	1
Fyvie Prince (imp.)	6126	Clyde.	1910	1904	Wm. D. MacLeod	Dunvegan	F. 1914	1
Baby Cloud	...	Grade	5568	1913	Amedie Decoste, Jr.	Glen Robertson	S. 1917	3*
Bruce	8948	Clyde.	323	1908	Joseph St Onge	Glen Robertson	S. 1915	1
Impeccable	2245	Per.	1558	1908	W. S. Jamieson & D. McMillan	Glen Sandfield	S. 1917	1
Red Spark	...	Grade	5437	1914	Stewart MacRae	Glen Sandfield	S. 1917	3*
Percheron (imp.)	258	Per.	1675	1902	W. R. Montgomery	Gravel Hill	F. 1914	1
Young Top Gallant Jr.	...	Grade	1094	1902	J. R. Kippen	Greenfield	F. 1912	3
Vivacity (imp.)	4444	Clyde.	1083	1902	A. J. R. McDone'l.	Greenfield	F. 1912	1
Joffre of Maxwellton	5522	Per.	5292	1915	J. A. MacLachlan	Green Valley	S. 1917	1*
Mount Victoria Polonius	771	Hack.	5664	1914	M. D. Campbell	McCrimmon	S. 1918	2
Duke of Connaught	782	Hack.	4797	1912	D. C. McArthur	Martintown	F. 1917	2
Cock of the North	16592	Clyde.	4745	1914	Hugh A. Robertson	Martintown	F. 1917	1
Prince Ambrose	...	Grade	1317	1902	D. R. McDonald	St. Raphaels	F. 1914	3
Rigolo (imp.)	3586	Per.	1461	1902	McRae, MacDonald & O'Day	St. Raphaels West	S. 1914	1
Rigilo	...	Grade	1079	1909	W. J. Chisholm	Summerstown Sta.	F. 1916	3
Victor of St. Lawrence	12721	Clyde	855	1909	Donald Hope	Summerstown	F. 1916	1
Springfield	...	Grade	1326	1904	Jos. Bergeron	Williamstown	S. 1914	3
Bold Archer	5477	Clyde.	1004	1903	P. & D. McCrimmon	Williamstown	F. 1912	1
Prince Lothian	...	Grade	5616	1914	Oliver Major	Williamstown	S. 1918	3
Hortensis Jr.	...	Grade	4398	1911	John Russell	Williamstown	F. 1916	3*

*Horse requires inspection.

GRENVILLE COUNTY.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Gitchie Manato	920	2970	St. Br.	3404	1899	Geo. E. Lane	Cardinal	S. 1914	1
Jim R. Forester	....	2239	Grade	2850	1904	A. H. Runions	Cardinal	F. 1914	3
Dick Baker	....	1871	Grade	1999	1909	C. J. Wright	Jasper	S. 1917	3
Beryllian	2214	5212	....	5758	1915	H. J. Patterson	Kemptville	S. 1918	1
Sir Walter	....	2372	Grade	3090	1910	Robert Brown	Kemptville	S. 1917	3
Hal Clause	017	545	St. Br.	655	1909	T. M. Griffin	Kemptville	F. 1916	1
Prince Guard	16996	4977	Clyde.	5281	1914	Benjamin Henry	Kemptville	S. 1917	1*
Wilkes B. Jr.	....	3674	Grade	4296	1909	Raymond Brothers	Kemptville	F. 1916	3
Bellboleer	401	1701	St. Br.	2539	1909	Thomas Graham	Merrickville	F. 1916	1
Young Holeux 2nd	....	4817	Grade	5377	1913	Wesley Montgomery	Merrickville	S. 1917	3
Gartly Baron	10423	2717	Clyde.	650	1909	Leonard T. Sunderland	North Augusta	F. 1916	2
Young Colonel Chief	....	4860	Grade	5423	1914	Thos. Hanlan	Oxford Mills	S. 1917	3*
Mac Blacon	20343	5194	Clyde.	5681	1915	A. B. Murphy	Oxford Mills	S. 1918	1
Pone	....	2539	Grade	1792	1908	Louis Typhair	Oxford Sta.	F. 1916	3
Gasteropade (imp.)	1528	451	Per.	1182	1906	G. E. Bradley	Prescott	F. 1914	1
Young Curzon	....	507	Grade	1183	1908	Samuel Simons	Prescott	F. 1916	3
Cecil R.	874	740	St. Br.	1184	1899	J. A. Hyndman	Spencerville	F. 1912	1
Crystal Worthy	58	1521	St. Br.	2140	1908	Jerry Wallace	Spencerville	F. 1916	1
Royama 2nd	17561	5196	Clyde.	5697	1918	Ralph Cummings	Spencerville	S. 1918	1
Kirk Hero	20244	5195	Clyde.	5696	1913	Neil Cummings	Spencerville	S. 1918	2

GREY COUNTY.

Buttress 2nd	19419	5165	Clyde.	5660	1914	Denis Cahoon	Annan	S. 1918	1
Era Chimes	....	2504	Grade	3192	1903	Peter Hume	Ayton	F. 1914	3
Mardi (imp.)	4441	3712	Per.	4245	1912	W. M. Atchison	Bognor	F. 1916	1*
Lockwood Chief	14437	3660	Clyde.	4049	1912	P. J. Ryan	Cedarville	F. 1916	1*
King of Kelton	11764	2722	Clyde.	3106	1909	Wm. J. Campbell	Chatsworth	F. 1916	1
Banquet (imp.)	9644	1585	Clyde.	363	1905	Brown Brothers	Clarksburg	F. 1914	1
Irmak (imp.)	1658	2386	Per.	2922	1908	John Brown	Clarksburg	F. 1917	1
Surmise	157	1108	Thor.	2083	1898	Geo. Duncan	Dundalk	F. 1914	1
Scott's Hero (imp.)	9556	328	Clyde.	213	1905	R. R. Kinnell	Dundalk	F. 1914	1
Muskogee Baron	1759	4536	St. Br.	4811	1908	Charles Palmer	Dundalk	F. 1916	1
Hyacinthus (imp.)	11251	2076	Clyde.	2750	1904	S. W. & J. M. Mills	Dundalk	S. 1914	1
Goliath	6456	2965	Clyde.	3005	1906	Tim Casey	Durham	F. 1914	1

The Peer (imp.)	13845	1123	Clyde.	.....1243	1910	I. E. Haug	.....Durham	F. 1916	1*
Seneca (imp.)	13915	1477	Clyde.	.....2362	1910	J. J. Jandt	.....Elmwood	F. 1916	1*
Diamond Scott	19710	5105	Clyde.	.....5581	1915	William Davidson, Jr.	.....Feversham	S. 1918	1
Kentucky Sam	856	736	St. Br.	.....1163	1905	Geo. H. Whiteoak	.....Feversham	F. 1914	1
Dunure George (imp.)	6886	742	Clyde.	.....1554	1904	Henry Fritz	.....Hanover	F. 1914	1
Oro Sphinx	1115	4064	St. Br.	.....271	1909	Walter S. Lines	.....Hanover	S. 1917	1
Prince of Canada	13532	2194	Clyde.	.....2187	1910	Jas. A. Myles & Co.	.....Heathcote	F. 1916	1*
Kincairney (imp.)	9286	703	Clyde.	.....1055	1904	Alex. Calder	.....Holstein	F. 1912	1
Laddie Evergreen	17441	5127	Clyde.	.....5566	1915	W. M. Groat	.....Holstein	S. 1918	1
Stalwart (imp.)	7813	384	Clyde.	.....901	1902	W. M. Groat	.....Holstein	F. 1912	1
Foremost (imp.)	13848	1120	Clyde.	.....1240	1910	Edward Hoy	.....Holstein	F. 1916	1*
Marnix (imp.)	607	1519	Bel. Dr.	.....1059	1902	Edward Hoy	.....Holstein	F. 1912	1
St. Ivel (imp.)	15227	3077	Clyde.	.....3616	1911	Alex. McDonald	.....Holstein	F. 1916	1*
Karlette Boy	4976	5014	Per.	.....5334	1915	Samuel J. Robb	.....Holstein	F. 1917	1
Young Ildebert	4480	4888	Per.	.....5439	1914	Samuel Robb	.....Holstein	S. 1917	1*
Lord Roberts	.....	4121	Grade	.....4504	1911	W. B. Smith	.....Holstein	F. 1916	3*
Copernicus	14054	3837	Clyde.	.....4277	1912	William Dingwall	.....Hopeville	F. 1916	1*
Fortune Teller (imp.)	8739	1662	Clyde.	.....2528	1899	R. R. Kinnell	.....Hopeville	F. 1914	1
Predominant (imp.)	12490	1663	Clyde.	.....2527	1909	R. R. Kinnell	.....Hopeville	F. 1916	1
Gipsy Jake	2642	4907	St. Br.	.....5174	1914	Jacob Hunt	.....Kilsyth	F. 1916	1*
Bonnie Charlie	10142	53	Clyde.	.....1056	1909	Geo. Hutcheson	.....Kimberley	S. 1917	2
Barney Doyle	16809	4746	Clyde.	.....5175	1914	W. R. Burnett	.....Markdale	F. 1916	1*
Cupbearer	444	793	St. Br.	.....1777	1906	James A. Crowston	.....Markdale	F. 1917	A1
Dominion Prince	17707	4495	Clyde.	.....4851	1913	James A. Crowston	.....Markdale	F. 1917	1
Gallant Baron (imp.)	8003	1304	Clyde.	.....1948	1906	James A. Crowston	.....Markdale	F. 1914	1
Lainshaw Castle (imp.)	13807	1083	Clyde.	.....1778	1909	James A. Crowston	.....Markdale	F. 1916	1
Nigout (imp.)	4442	4486	Per.	.....4962	1913	James A. Crowston	.....Markdale	F. 1917	1
Horizon (imp.)	16341	3751	Clyde.	.....4279	1911	William Foster	.....Markdale	F. 1916	A1*
Cairnbrogie Stamp	2527	1425	Clyde.	.....1797	1898	James H. Lever	.....Markdale	F. 1914	1
Dandy Lad	19760	5007	Clyde.	.....5547	1915	Thomas Mercer	.....Markdale	S. 1918	1
Lord Ronald Clive	20065	5024	Clyde.	.....5564	1915	Thomas Mercer	.....Markdale	S. 1918	1
Peter Burtwood	1737	4010	St. Br.	.....4157	1909	J. E. March	.....Markdale	F. 1917	A1
Baillie Boy (imp.)	13766	612	Clyde.	.....633	1910	Angus McInnis	.....Markdale	F. 1916	1*
Isomar (imp.)	14053	1612	Clyde.	.....2483	1910	J. S. Shepherdson	.....Markdale	F. 1917	A1
Diamond	5380	3239	Per.	.....2651	1903	Abraham Smith	.....Meaford	S. 1915	1
Blyth Prince (imp.)	13758	691	Clyde.	.....1465	1910	William Aldcorn	.....Mount Forest	F. 1916	1*
Black Boy (imp.)	11780	1578	Clyde.	.....1657	1908	George Drewery	.....Mount Forest	S. 1917	1
Royal Winsome	20313	5126	Clyde.	.....5533	1916	Chas. Gilstorf & Sons	.....Mount Forest	F. 1917	1
Sir Harold (imp.)	11880	415	Clyde.	.....678	1907	Walter A. Reeves	.....Mount Forest	F. 1914	1
President Roosevelt (imp.)	7759	2716	Clyde.	.....82	1902	Milton E. Bebee	.....Owen Sound	F. 1912	1
Favori 2nd	.....	2569	Grade	.....314	1908	C. Brock	.....Owen Sound	S. 1917	3

*Horse requires inspection.

GREY COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Lord Helsington (imp.)	9802	928	Clyde.	1190	1905	Christopher Brock	Owen Sound	F. 1914	1
Baron Lovat	.....	2602	Grade	3227	1910	Thos. Lake	Owen Sound	S. 1918	3
Walter Wilkes	.....	1962	Grade	2666	1905	Stephen Leach	Owen Sound	F. 1914	3
Manor Prince	15805	2846	Clyde.	3351	1910	John & M. A. McIntyre	Owen Sound	S. 1918	1
Sir Crossley (imp.)	11785	816	Clyde.	1884	1907	R. J. Norton, 933 3rd Ave. E.	Owen Sound	S. 1916	1
Crown Parole	1831	4322	St. Br.	4729	1904	R. J. Norton, 933 3rd Ave. E.	Owen Sound	F. 1914	1
Maidenhall (imp.)	8459	63	Clyde.	1089	1906	W. J. Paterson	Owen Sound	F. 1914	1
Prince Gambit	.....	3547	Grade	3946	1909	John T. Reeve	Oxenden	F. 1916	3
Sir John A. 3rd	17393	5089	Clyde.	5173	1914	Charles Elager	Presque Isle	F. 1916	1*
Joe McGregor	1438	4190	St. Br.	4415	1901	Gordon J. Elager	Presque Isle	S. 1915	1
Royal Luck (imp.)	15281	2929	Clyde.	3407	1911	Grey Clydesdale Assn.	Presque Isle	F. 1917	1
Weldonian McKinney	114	441	St. Br.	857	1910	J. A. McKenzie	Presque Isle	F. 1917	A1
Queen's Regent (imp.)	12683	2326	Clyde.	2982	1909	Louis Frook	Priceville	S. 1916	1
King's Abbot (imp.)	9807	1995	Clyde.	1058	1907	Daniel McLeod	Priceville	S. 1916	1
Sir Marquis	19339	5132	Clyde.	5541	1916	Samuel Batchelor	Proton Sta.	F. 1917	1
Rayo	19136	4685	Clyde.	5108	1914	Herbert J. Corbett	Proton Sta.	F. 1916	1*
Fortune Prince	14201	457	Clyde.	1138	1910	Robert Grummett	Proton	F. 1916	1*
Argus	.....	106	Grade	1348	1905	W. J. Love	Proton Sta.	F. 1914	3
Newton Don 2nd	.....	3783	Grade	4344	1912	Chas. McCutcheon	Proton Sta.	F. 1916	3*
Silver Strand (imp.)	9643	515	Clyde.	1307	1904	Gordon R. McDonald	Proton Sta.	F. 1914	1
Barrie Boy	950	4045	St. Br.	197	1909	J. L. McDonald	Proton	S. 1918	1
Lord Kelvin	5736	3731	Clyde.	1713	1905	Isaac Brown	Rocklyn (R.R. 2)	F. 1914	1
MacNeillage, Jr.	.....	2025	Grade	2749	1900	Everett Martin	Rocklyn	F. 1914	3
Royal Knight (imp.)	15294	3252	Clyde.	3530	1910	George Henderson	Tara	F. 1916	1*
Buffalo Bill 2nd	.....	997	Grade	1591	1905	John Scott	Varney	F. 1914	3
Bath Junior	.....	104	Grade	980	1908	J. H. Baker	Woodford	F. 1916	3

HALDIMAND COUNTY.

Grey Napoleon	4558	4007	Per.	4408	1912	Martin Rew	Attercliffe Sta.	S. 1918	1
Kinpurnie (imp.)	7817	495	Clyde.	1171	1905	Fred Moore	Caledonia	F. 1914	1
Peter Watts	2623	5075	St. Br.	5573	1911	I. J. Smelcer	Caledonia	S. 1918	1
Jabloir	4019	3678	Per.	3981	1909	Dunnville Percheron Horse Association	Dunnville	F. 1916	1
Norfolk King	9814	548	Clyde.	1585	1908	David Patton	Dunnville	S. 1915	1

Belaire	1536	Grade	1901	Herbert Robinson	Dunnville	S. 1918	3
King of Woodslee	5086	Clyde.	1915	Warren Stringer	Dunnville	S. 1918	1
Kentucky Owyho	4078	St. Br.	1907	G. F. Windecker	Dunnville	S. 1915	1
Jarnac (imp.)	3511	Per.	1909	Nicholas Bacher	Fisherville	S. 1916	1
Leland Sensation	152	Grade	1905	James Zimmerman	Fisherville	S. 1914	3
Dr. John	646	St. Br.	1896	William Alward	Hagersville	F. 1912	1
Gayspark (imp.)	645	Clyde.	1901	George Gilbertson	Hagersville	F. 1912	1
Opulence	644	Clyde.	1902	George Gilbertson	Hagersville	F. 1912	1
Argyle Duke	277	Clyde.	1911	Henry Hammond	Hagersville	S. 1917	1*
Wilfred King	4598	Clyde.	1913	Anthony Harris	Hagersville	F. 1917	2
Coronation	2589	Clyde.	1903	Alexander Hunter	Hagersville	S. 1915	3
Riband Jr.	960	Grade	1909	Peter Johnson	Hagersville	F. 1916	3
Lord Commodore	4321	Clyde.	1913	Murray Martin	Hagersville (R.R. 3) ..	S. 1918	1
Red Elk	3297	Grade	1892	Wesley McDougall	Hagersville	S. 1915	3
Petaín	5061	Per.	1915	Albert Snell	Hagersville	F. 1917	1
Prince Aberdeen	4105	Grade	1904	James Swing	Hagersville	S. 1915	3
Elsing Lambert Shales	4073	Hack.	1912	William E. Winger	Hagersville	S. 1917	1*
Princely Harold	3705	Clyde.	1912	Alexander Bartlett	Jarvis (R.R. 3) ..	S. 1917	1*
Young Coronation	4284	Grade	1911	Samuel Jacques	Jarvis	S. 1917	3*
King of Gretna (imp.)	710	Clyde.	1909	Montague, Nichol & Martin ..	Jarvis	F. 1916	1
Janassa (imp.)	2771	Per.	1909	Ira Minor	Low Banks	F. 1916	2
Galicer	5018	Per.	1915	George Rinker	Low Banks	F. 1917	1
Baron Leven (imp.)	416	Clyde.	1902	Mila A. Wood	Nanticoke	F. 1912	1
Prickwillow Connaught (imp.) ..	4001	Hack.	1899	Alfred Lamb	Selkirk	F. 1914	1
K. L. Todd	3570	St. Br.	1909	H. A. Lamb	Selkirk	F. 1916	1
Haimon Jr.	2899	Grade	1911	G. H. Yocum	Selkirk (R.R. 2) ..	F. 1916	3*
Young Garneyland Castle	2471	Grade	1907	William B. Hamilton	York	F. 1914	3

HALTON COUNTY.

Prince Poteath	2850	Grade	1907	Thomas Storey	Acton West	F. 1914	3
The Reprobate	3285	St. Br.	1899	W. J. Gilks	Allandale	S. 1914	1
Quebec Boy	611	Fr. Can.	1903	Jas. Hume, Manager	Georgetown .....	.....	..
Haxshire ex Illimination	4662	St. Br.	1905	W. W. Boyd	Burlington	F. 1912	1
Perfection	5171	Per.	1915	F. A. Heslop	Burlington	S. 1916	1
Ace of Diamonds	1836	Grade	1898	Chas. A. Newell	Campbellville	S. 1918	1
Rock Mario	4606	Clyde.	1913	T. M. Alton	Freeman	F. 1914	3
Isly (imp.)	1433	Per.	1908	Ellery Brownridge	Georgetown	F. 1917	1
				James Hume	Georgetown	F. 1917	A1

*Horse requires inspection.

HALTON COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Audubon	757	659	St. Br.	.....1371	1905	Albert Sachs	Georgetown	F. 1914	1
Captain Dillard	....	4040	Grade	.....4166	1906	Andrew Vance	Georgetown	F. 1914	3
Silver Treasure	15555	3823	Clyde.	.....4428	1913	Gordon Brecken	Merton	F. 1916	1*
Sporty Boy	....	304	Grade	.....1431	1911	William Gunby	Millgrove	F. 1917	3
Lambert Todd	....	5083	Grade	.....5636	1916	A. L. Chambers	Milton	S. 1918	3
Royal Barglass	....	5082	Grade	.....5635	1916	A. L. Chambers	Milton	S. 1918	3
Star Wilkes	....	2212	Grade	.....994	1899	Archie McDougall	Milton	F. 1914	3
Harold Todd	1024	3151	St. Br.	.....3680	1910	C. H. Heslop	Milton West	F. 1916	1*
Hydrogene (imp.)	1050	1941	Per.	.....626	1907	W. E. McCready	Milton West	F. 1914	1
Lampiste (imp.)	3291	397	Per.	.....1366	1903	Wm. E. McCready	Milton West	F. 1914	1
Luth (imp.)	4470	3991	Per.	.....4086	1911	Wm. E. McCready	Milton West	F. 1916	1*
Bonnie Russell	18161	4739	Clyde.	.....5206	1913	Chas. W. Donoven	Moffatt	F. 1916	1*
Lookout 2nd	18288	5081	Clyde.	.....5634	1916	Bater Brothers	Oakville	S. 1918	1
Haricot	5625	5080	Per.	.....5633	1916	W. E. Morden	Oakville	S. 1918	1
Main Chance	524	361	Thor.	.....406	1904	Jacob E. Lucas	Palermo	F. 1912	1

HASTINGS COUNTY.

Riverside Coin	5746	731	Clyde.	.....870	1907	Eldon Roy	Actinolite	S. 1915	1
Bartlett	251	3954	St. Br.	.....4326	1911	James Redcliffe	Bellview	F. 1916	1*
Jerome	5440	4998	Per.	.....5488	1915	W. E. Anderson	Belleville	F. 1917	1
Billy Kay	0153	5042	St. Br.	.....5577	1913	A. C. Dafoe	Belleville	S. 1918	1
Sheriff Todd	253	4267	St. Br.	.....2421	1909	H. E. Fairfield	Belleville	F. 1916	1
Yorick (imp.)	14089	4601	Clyde.	.....1189	1910	John J. Fitzgerald	Belleville	F. 1917	1
Gallant Cross	12789	3185	Clyde.	.....3715	1911	Stanley May	Belleville	F. 1917	2
Robert Patch	184	4270	St. Br.	.....2042	1904	W. J. Orr	Belleville	F. 1915	1
Dayspring	695	4266	St. Br.	.....2420	1908	Wallace Parks	Belleville	F. 1915	1
Alick	645	4323	St. Br.	.....4215	1912	George Powell	Belleville	F. 1915	1*
Peter Range	2226	4735	St. Br.	.....5294	1913	C. F. Robinson	Belleville	F. 1916	1*
Klinis (imp.)	4049	2948	Per.	.....3494	1910	N. Vermilyea & Sons	Belleville	S. 1917	AI*
Dexter Tariff	....	4410	Grade	.....4725	1912	Eleazer Williams	Belleville	F. 1917	AI
Tom Tariff	....	1245	Grade	.....1691	1905	Eleazer Williams	Belleville	S. 1914	3*
Rouget Jr.	....	1218	Grade	.....2033	1908	Frank Plue	Bogart	S. 1917	3
Joe	....	17	Grade	.....1345	1905	W. B. King	Coe Hill	S. 1915	3
Golder Rayner	090	4722	St. Br.	.....5255	1915	D. W. Hubbs	Corbyville	S. 1917	1*

Prince of Kinellar 2nd	.....	120	Grade	..... 777	1900	Samuel Tanner	..... Crookston	.....	F. 1912	3
Rustic	.....	1989	Grade	..... 2734	1908	Edward Reeves	..... Detlor (R.R. 1)	.....	S. 1915	3
Black Knight	.....	931	Clyde.	..... 1379	1903	John C. Schriver	..... Detlor	.....	S. 1916	1
Belle Boy 2nd	.....	1381	Clyde.	..... 1561	1910	F. A. Comerford	..... Eldorado	.....	F. 1916	1*
George Rayner	.....	3551	St. Br.	..... 3835	1912	Ashley Stock Farm	..... Foxboro	.....	F. 1916	1*
Jack Rayner	.....	4723	St. Br.	..... 5258	1915	Ashley Stock Farm	..... Foxboro	.....	S. 1917	1*
Judge Carman	.....	4197	St. Br.	..... 4691	1913	Ashley Stock Farm	..... Foxboro	.....	S. 1917	1*
McMartin	.....	392	St. Br.	..... 572	1909	Ashley Stock Farm	..... Foxboro	.....	F. 1916	1
Todd McGregor	.....	4683	St. Br.	..... 5106	1909	Ashley Stock Farm	..... Foxboro	.....	F. 1916	1
Starlight Dan	.....	3479	Grade	..... 3485	1911	John T. Haggerty	..... Frankford	.....	S. 1917	3*
Prince George	.....	2042	Clyde.	..... 2820	1909	Andrew Kehoe	..... Frankford	.....	F. 1916	1
Scotland Clyde	.....	4690	Clyde.	..... 5110	1914	J. E. Wellman	..... Gunter	.....	F. 1916	1*
Tobe	.....	2192	Grade	..... 2941	1910	J. E. Wellman	..... Gunter	.....	F. 1916	3*
General Sir Sam	.....	5121	Per.	..... 5519	1915	Alex. McCoy	..... Madoc	.....	F. 1917	2
Barney	.....	1644	Grade	..... 2400	1910	William A. Miller	..... Madoc	.....	F. 1916	3*
Acme's Echo	.....	2430	Clyde.	..... 3135	1910	Patrick Maloney	..... Marmora	.....	F. 1916	1*
Winchester (imp.)	.....	2607	Hack.	..... 49	1901	Flynn & McCullough	..... Marmora	.....	F. 1912	2
Ancona Louis	.....	2469	Per.	..... 50	1901	George Wellman	..... Marmora	.....	F. 1912	1
Silloth Again	.....	1991	Clyde.	..... 79	1910	William J. Douglas	..... Maynooth	.....	F. 1916	1*
Prince George	.....	1031	Grade	..... 202	1905	John E. Green	..... Maynooth	.....	S. 1915	3
Young Rustique	.....	2317	Grade	..... 3055	1909	John Hinze	..... Maynooth Sta.	.....	F. 1916	3
Royal Ross 2nd	.....	2358	Grade	..... 3079	1905	George Martin	..... Queensboro	.....	F. 1914	3
Young Pioneer	.....	3760	Grade	..... 4226	1913	Ernest Fitzgibbon	..... Steenburg	.....	F. 1916	3*
Tim Alert	.....	1985	Grade	..... 2417	1903	David Moore	..... Steenburg	.....	S. 1913	3
Harford Ashley	.....	4853	St. Br.	..... 5095	1913	Jas. J. Fitzpatrick	..... Stirling	.....	F. 1916	1*
Sir Wilfred Jr.	.....	223	Grade	..... 55	1908	William F. Hanna	..... Stirling	.....	S. 1917	3
Houlton Pride	.....	3757	Suff.	..... 4213	1913	James McCowan	..... Stirling	.....	F. 1916	1*
Black Prince	.....	1548	Grade	..... 2248	1905	Dennis Fleming	..... Stoco	.....	F. 1914	3
Jackson	.....	3268	Per.	..... 3758	1909	Daniel Whalen	..... Stoco	.....	S. 1917	1
Mac Laddie	.....	427	Grade	..... 773	1907	Thomas Leveck	..... Stoco	.....	F. 1914	3
Gold Dust	.....	3094	Clyde.	..... 3646	1910	E. & D. Moore	..... The Ridge	.....	S. 1917	2
Senator	.....	2333	Clyde.	..... 1394	1900	James & George Kelly	..... Wood	.....	F. 1914	2

HURON COUNTY.

Colston Leader (imp.)	.....	5188	Clyde.	..... 402	1900	Raymond McConnell	..... Auburn	.....	F. 1912	1
Maitland Boy	.....	12338	Clyde.	..... 2609	1907	Henry Wagner	..... Auburn	.....	F. 1914	2
Allerby	.....	1110	St. Br.	..... 5124	1907	Robert Penhale	..... Bayfield	.....	F. 1916	1
Tetinus (imp.)	.....	2266	Per.	..... 396	1908	Robert Penhale	..... Bayfield	.....	F. 1916	2

*Horse requires inspection.

HURON COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Lord Mansfield .....	.....	1734	Grade	2385	1904	James Evans	Beechwood	S. 1914	3
King Gartsherrie	10219	1680	Clyde.	2311	1909	H. F. Kirby	Belgrave	F. 1916	1
Jazeneuil (imp.)	2909	2107	Per.	1471	1909	Scott Brothers	Belgrave	F. 1916	1
Major Hal	063	2257	St. Br.	2853	1907	Con. Baker	Belmore	F. 1914	1
Dunure Gold Link (imp.)	9600	1330	Clyde.	1848	1907	J. W. King	Bluevale	S. 1915	1
Dunure Lucky Star	15379	3335	Clyde.	3740	1911	J. W. King	Bluevale	F. 1916	A1*
Mascot (imp.)	4598	1328	Clyde.	1850	1902	J. W. King	Bluevale	F. 1914	1
Elmer Dickson	2295	4881	Clyde.	5396	1909	Thos. J. Coulter	Blyth	F. 1917	A1
Ike Medium	1070	2936	St. Br.	3474	1909	Thos. J. Coulter	Blyth	F. 1917	A1
Pride of Glencairn (imp.)	10377	2652	Clyde.	820	1908	J. E. Ellis	Blyth	F. 1916	1
Honest John	12083	2	Clyde.	397	1910	Joseph & Wm. Gray	Blyth	F. 1916	A1*
Nation's Stamp	17138	5068	Clyde.	5622	1915	Joseph & Wm. Gray	Blyth	S. 1918	2
Blacon Cross (imp.)	9559	876	Clyde.	1655	1907	William Johnson	Blyth	F. 1914	1
Index (imp.)	3140	363	Per.	421	1908	William Berry	Brucefield	F. 1916	1
Earl O'Clay	12035	699	Clyde.	953	1905	Robert Murdoch	Brucefield	S. 1915	1
Earl of Stanley	18390	5051	Clyde.	5621	1916	Robert Murdoch	Brucefield	S. 1918	1
Meaburn 2nd	17069	4704	Clyde.	5168	1914	Henry Bone	Brussels	F. 1916	1*
Shethin Stamp (imp.)	9998	1280	Clyde.	2155	1907	A. F. Embury & Son	Brussels	F. 1914	2
Craigie Double	18458	5050	Clyde.	5620	1916	Robert Nichol	Brussels	S. 1918	1
Lothian Type (imp.)	8914	756	Clyde.	1384	1906	James Parr	Brussels	F. 1914	1
Fashion Scot	20470	5049	Clyde.	5619	1915	Robert Scott	Brussels	S. 1918	1
Prince Kinnaid	19552	5053	Clyde.	5575	1915	James Spier	Brussels	S. 1918	1
Royal Artist .....	.....	177	Grade	709	1908	Robert L. Taylor	Brussels	F. 1916	3
Pathfinder (imp.)	15330	3880	Clyde.	1035	1912	W. T. Colwill	Centralia	F. 1916	1*
Prince of Carrick (imp.)	17249	4756	Clyde.	5133	1915	W. T. Colwill	Centralia	F. 1916	1*
Rio Grande (imp.)	14940	2180	Clyde.	2863	1907	Archibald T. Dale	Clinton	F. 1914	1
Balmerino (imp.)	11579	3459	Clyde.	3903	1907	William Fear	Clinton	F. 1914	1
Royal Melrose	652	5047	St. Br.	3670	1912	J. J. McCaughey	Clinton	S. 1918	1
Tommy Bars	1053	2422	St. Br.	2908	1907	J. J. McCaughey	Clinton	F. 1914	1
Shawhill King (imp.)	547	2086	Hack.	2811	1908	B. B. Stephenson	Clinton	F. 1916	1
Lord Ronald	11414	1376	Clyde.	1936	1909	C. P. Wallis	Clinton	F. 1916	1
Charming Prince (imp.)	11477	1601	Clyde.	2577	1909	James Cockwill	Crediton	S. 1916	2
Tatler (imp.)	14584	1656	Clyde.	2571	1910	Eli King	Crediton	F. 1916	1*
Rex Downing	1642	3855	St. Br.	4447	1909	Mrs. Jas. Hannan	Dashwood	F. 1916	1
Harry Bars	1804	3299	St. Br.	3781	1904	Jonas Hartleib	Dashwood	F. 1914	2
Blacon King (imp.)	11686	4243	Clyde.	3243	1908	Isaiah Tetreau	Dashwood	F. 1916	1
Sir Otto	13636	68	Clyde.	1002	1910	Edmund Walker	Dashwood	F. 1916	1*

Humide (imp.)	1480	376	Per.	1907	William Witzel	Dashwood	F. 1914	1
Aidin	.....	3457	Grade	1901	James Cousins	Dungannon	S. 1915	3
Gladstone	.....	4757	Per.	1914	George Irwin	Dungannon	F. 1916	1*
Electric B.	5480	4967	Grade	1907	T. M. McLean	Dungannon	S. 1917	3
Marquis	.....	2008	Grade	1908	T. M. McLean	Dungannon	S. 1917	3
Red McKinney	.....	1151	St. Br.	1905	James Berry	Egmondville	S. 1913	1
Cedric King (imp.)	1002	3873	Clyde.	1913	Thomas Vodden	Ethel	F. 1916	1*
Willie Groverland	16340	3615	Grade	1904	Edward Wood	Ethel	F. 1914	3
Albion's Glory	.....	2546	Clyde.	1906	Andrew Darcy	Fordwich	S. 1914	1
Hygrade	8732	3595	St. Br.	1907	William H. Brinley	Goderich	F. 1914	2
Sir Randolph (imp.)	9547	473	Clyde.	1902	George J. Ferguson	Goderich	S. 1918	AI
Glenlivet Chief (imp.)	6077	2278	Clyde.	1903	Aaron & Ezra Fisher	Goderich	F. 1914	1
Mile Boy	.....	4661	Grade	1913	Ernest Mitchell	Goderich	F. 1917	3
Walter Eddy	.....	1776	St. Br.	1908	A. M. Polly	Goderich	F. 1916	1
Acton Saint	958	5052	Clyde.	1915	Richard Porter	Goderich	S. 1918	1
Seagull Danegelt	19858	302	Grade	1906	George Richardson	Goderich	F. 1914	3
Avon McGregor	.....	5054	Clyde.	1913	Albert Johnston	Gorrie	S. 1918	1
Cobourg	19945	1436	Thor.	1897	Henry Bierling & J. J. Miller	Hay	F. 1914	1
Gentry De Forest	523	5198	St. Br.	1910	J. J. Miller	Hay	S. 1918	2
Scottish Gem (imp.)	.....	1630	Clyde.	1909	John J. Miller	Hay	F. 1917	AI
Attractive Prince (imp.)	12560	3922	Clyde.	1901	W. J. Cooper	Henfryn	S. 1915	1
Colonel Graham (imp.)	16471	1370	Clyde.	1902	T. J. Berry	Hensall	S. 1915	1
Commodore (imp.)	9235	1681	Clyde.	1907	T. J. Berry	Hensall	F. 1917	AI
Jabot (imp.)	9596	1369	Per.	1909	T. J. Berry	Hensall	F. 1917	AI
King Thomas (imp.)	3139	1366	Clyde.	1902	T. J. Berry	Hensall	S. 1915	1
Nard (imp.)	9254	4936	Per.	1913	T. J. Berry	Hensall	S. 1917	1*
Dextro	6382	5185	Grade	1914	H. C. Soldan	Hensall	S. 1918	3
Pearl Gift (imp.)	.....	3296	Clyde.	1904	John Hanna	Kirkton	F. 1914	1
Baron Randolph	16085	5163	Grade	1915	Thos. A. Powell	Kirkton (R.R. 1)	S. 1918	3
King John (imp. in dam)	.....	4363	Clyde.	1913	W. H. Kay	Kirkton	F. 1917	1
Lord Southwark (imp.)	17226	5193	Clyde.	1909	James Leiper	Londesboro	S. 1918	2
Emulation (imp.)	11243	817	Clyde.	1909	Leiper & Moon	Londesboro	F. 1916	2
Moostrooper Champion (imp.)	14450	2991	Clyde.	1900	William W. Vodden	Londesboro	S. 1914	1
Bridgebank Blend (imp.)	3346	540	Clyde.	1908	Alex. Anderson	Lucknow	S. 1915	1
Mascot's Heir	11102	4328	Clyde.	1908	James Forster	Lucknow	S. 1916	1
Sir Hector of Westfield (imp.)	11115	533	Clyde.	1907	Thomas Inglis	Lucknow	F. 1914	1
Happy Jack	14060	4716	Clyde.	1914	George Swan	Lucknow	F. 1916	1*
Moulton William (imp.)	16508	2046	Shire	1900	Richard Twamley	Lucknow	F. 1914	1
Matchless (imp.)	1065	454	Clyde.	1906	Bock & Fried Brothers	New Dundee	S. 1914	1
Signalman	8912	903	Clyde.	1907	John Campbell	Seaforth	F. 1914	1
Jay Medium	8970	2629	St. Br.	1904	R. B. Govenlock	Seaforth	F. 1914	1

*Horse requires inspection.

HURON COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Sandy Favourite	17042	4239	Clyde.	4707	1913	Archie Kerr	..... eaforth	F. 1916	1*
Colonel Bowers	19005	4522	Clyde.	5025	1913	Thos. McMichael & Son	..... Seaforth	S. 1918	1
Glen Rae	8353	1311	Clyde.	1935	1907	Thos. McMichael & Son	..... Seaforth	F. 1914	1
Royal of Dunholmhill	18787	5048	Clyde.	5610	1916	Thos. McMichael & Son	..... eaforth	S. 1918	1
Dunure Gartley	9221	97	Clyde.	704	1908	G. W. Nott	..... Seaforth	S. 1917	1
Todd Winters	2337	4785	St. Br.	5304	1914	Robert M. Pinkney	..... Seaforth	S. 1917	1*
Emperor McKinney	1653	4075	St. Br.	4341	1909	Charles Riley	..... Jeaforth	F. 1916	1
Cumberland Gem (imp.)	13978	1367	Clyde.	2329	1910	John J. McGavin	..... Walton (R.R. 2)	F. 1916	1*
Castelar	225	2824	Per.	3354	1905	J. & S. Frieburger	..... Wingham (R.R. 2)	F. 1914	1
Royal Jimmie	5217	1890	Clyde.	1918	1903	Thos. P. James	..... Wingham	S. 1915	1
Wildbrino King	79	3918	St. Br.	4046	1903	V. R. VanNorman	..... Wingham	F. 1914	1
Scotch Bobbie	15754	3898	Clyde.	4389	1912	G. W. Gibson	..... Wroxeter	F. 1916	1*
Baron Lorn Jr.	.....	1239	Grade	1945	1907	Alex. Montgomery	..... Wroxeter	S. 1915	3
Ledoro	2196	2702	St. Br.	3064	1909	John Baker	..... urich	F. 1916	1
Peter Nordine	.....	4886	Grade	5432	1915	John Decker, Jr.	..... Zurich	S. 1917	3*
Non Parole	840	624	St. Br.	1463	1900	R. T. Dunlop & Samuel Hey	..... Zurich	F. 1914	1
Great War McKinney	.....	5175	Grade	5650	1915	E. Bossenberry & J. A. Cantir	Zurich (Box 293)	S. 1918	3

KENT COUNTY.

Regal Chattan	9642	41	Clyde.	41	1909	Elam Hind	..... Bear Line	S. 1917	1
Marchfield Baron (imp.)	8432	868	Clyde.	1637	1904	Norman Cooper	..... Blenheim	F. 1914	1
Brilliant	779	1643	Per.	2493	1901	Rufus Earl	..... Blenheim	S. 1916	1
King's Counsel	973	1769	St. Br.	1318	1896	Rufus Earl	..... Blenheim	F. 1914	1
Baron of Fife (imp.)	18111	5200	Clyde.	5692	1915	George W. Attridge	..... Blenheim	S. 1918	1
Earl Fife (imp.)	11581	1250	Clyde.	2030	1908	David McLeod	..... Blenheim	F. 1916	1
Gearing Boy	1363	3316	St. Br.	3514	1910	Sparham Brothers	..... Blenheim	F. 1916	1*
Amiral (imp.)	3611	1757	Per.	28	1903	Henry Brewer	..... Bothwell	F. 1912	1
Gearing	918	1756	St. Br.	29	1900	Henry Brewer	..... Bothwell	F. 1912	1
Hartland's Favorite	5727	3023	Clyde.	27	1905	A. H. Patterson	..... Bothwell	F. 1914	1
Oaklands Pride	10308	772	Clyde.	1487	1909	W. R. McGuigan	..... Cedar Springs	F. 1916	1
Oulton Lowe Model (imp.)	1212	4054	Shire	4591	1906	Dell Drury	..... Charing Cross	S. 1915	1
Sentinel Wood	.....	4310	Grade	4778	1908	Alex. Aeddy	..... Chatham	S. 1916	3
Libidieux (imp.)	3854	2872	Per.	3383	1911	Reuben Brend	..... Chatham (R.R. 6)	S. 1918	1
The Great Widower	1681	4406	St. Br.	4932	1913	A. D. Chaplin	..... Chatham	S. 1918	1

Young Joyeux	.....	2558	Grade	.....1476	1908	Edward Caron	.....Chatham	.....	F. 1916	3
Lord Fisher	.....	300	Grade	.....1402	1897	Alfred Dingman	.....Chatham	.....	F. 1914	3
▲Ixode (imp.)	.....	1371	Per.	.....2333	1908	James Downie	.....Chatham	.....	S. 1917	1
zDuke of Carruchan	.....	4771	Clyde.	.....5366	1914	James Gordon	.....Chatham (R.R. 1)	.....	S. 1917	1*
⊖Grand Allerton	.....	32	St. Br.	.....6	1905	John Hales	.....Chatham	.....	F. 1914	1
Highland King	.....	1257	Clyde.	.....2012	1910	John Jinks	.....Chatham	.....	S. 1918	2
Normand	.....	4289	Per.	.....4040	1912	McGarvin Brothers	.....Chatham	.....	S. 1917	1*
Alto Dewey	.....	2724	St. Br.	.....3193	1907	D. McLachlan	.....Chatham	.....	F. 1914	2
College King	.....	2832	St. Br.	.....3311	1899	D. McLachlan	.....Chatham	.....	F. 1914	1
Wild Brino Custer	.....	3172	Grade	.....2747	1906	Maurice O'Neill	.....Chatham	.....	F. 1914	3
Black Porte	.....	3103	Per.	.....2156	1909	James R. Cook	.....Coatsworth	.....	F. 1916	1
Earl of Chester	.....	2236	St. Br.	.....71	1902	Clayton Logan	.....Croton	.....	F. 1912	A1
Sam	.....	3402	Grade	.....3862	1908	Peter Letourneau	.....Dover Centre	.....	S. 1915	3
Royal Major	.....	3305	Clyde.	.....2452	1911	John Campbell	.....Dresden	.....	F. 1917	2
Dashing King (imp.)	.....	1464	Clyde.	.....2139	1904	Joseph Elgie	.....Dresden	.....	F. 1914	1
Jess Willard	.....	5203	St. Br.	.....5687	1915	John Hooper	.....Dresden (R.R. 4)	.....	S. 1918	1
Logan O.	.....	404	St. Br.	.....598	1902	N. C. Houston	.....Dresden	.....	F. 1912	1
Oungah Pride	.....	5059	Clyde.	.....4508	1915	Joseph Thorpe	.....Dresden (R.R. 5)	.....	S. 1918	1
Bob Hampton	.....	183	St. Br.	.....1299	1898	B. I. Fraser	.....Merlin	.....	F. 1914	1
Archer	.....	1318	Per.	.....1894	1910	David L. Gardiner	.....Merlin	.....	F. 1916	1*
Livingstone	.....	5109	Per.	.....5628	1915	J. L. B. Gardiner	.....Merlin	.....	S. 1918	1
Baron Hillbrae 2nd	.....	1153	Clyde.	.....358	1910	David Hall	.....Merlin	.....	S. 1918	1
Blacon Yet	.....	2984	Grade	.....2063	1906	Alex. Houston	.....Merlin	.....	S. 1915	3
Peswick Freeman	.....	2985	Grade	.....2064	1904	Alex. Houston	.....Merlin	.....	S. 1915	3
Lost Heir	.....	2826	Clyde.	.....3356	1911	Alexander Osborne	.....Merlin	.....	F. 1916	1*
Correct	.....	2951	Per.	.....1890	1906	J. W. Tackaberry	.....Merlin	.....	F. 1914	1
Bourbon	.....	190	Grade	.....301	1900	James Johnstn	.....Morpeth	.....	F. 1914	3*
Duke of Oxford	.....	550	Clyde.	.....43	1908	George A. Attridge	.....Muirkirk	.....	F. 1916	1
Jouy (imp.)	.....	3104	Per.	.....3420	1909	George D. Ferguson (Estate)	.....Muirkirk	.....	F. 1916	1
Ben Carrick	.....	3441	Grade	.....2649	1899	William Jones	.....Muirkirk	.....	S. 1914	3
Kaboulot (imp.)	.....	2185	Per.	.....2001	1910	J. G. Pinder	.....Mull	.....	F. 1917	1
Victor Hugo	.....	783	Per.	.....1776	1898	Matthew E. Miller	.....Northwood	.....	S. 1914	1
Joseph	.....	3561	Per.	.....2431	1910	Napoleon Caron	.....Paincourt	.....	F. 1916	1*
Sunbean Junior	.....	15159	Clyde.	.....3323	1911	Alvin Murray	.....Ridgetown	.....	F. 1917	1
Lloyd George	.....	626	St. Br.	.....1	1908	R. C. Coates	.....Thamesville	.....	F. 1916	1
Kerjolla	.....	3075	St. Br.	.....3540	1911	Cryderman & Ferguson	.....Thamesville	.....	F. 1916	1*
Gold Ring Jr.	.....	310	Mor.	.....38	1898	John Mowbray	.....Thamesville	.....	F. 1912	1
Royalist of Drumlanrig (imp.)	.....	1167	Clyde.	.....1406	1909	Selton Clydesdale Co.	.....Thamesville	.....	F. 1912	1
Hurleur (imp.)	.....	1081	Per.	.....2	1907	Thamesville Percheron Horse	.....Thamesville	.....	S. 1917	1
Brown Gem	.....	805	St. Br.	.....355	1905	Breeders' Association	.....Thamesville	.....	F. 1917	A1
						L. Perley Cottingham	.....Tilbury	.....	F. 1914	1

*Horse requires inspection.

KENT COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Prince Pontiac	2481	4144	St. Br.	303	1907	L. A. LaChapelle	Tilbury	S. 1915	2
The Farmer's Friend		3111	Grade	3645	1909	Henry Trudell	Tilbury	F. 1916	3
Wildbrino Jr.	2135	2561	St. Br.	2025	1888	Henry Trudell	Tilbury	F. 1914	1
Jours (imp.)	4013	4499	Per.	4431	1909	Richard Rosebrugh	Turnerville	F. 1916	1
King Peter	4569	5020	Per.	5138	1914	Geo. Buckingham	Wallaceburg	F. 1916	1*
Kodi (imp.)	4462	3941	Per.	4170	1910	John Buckingham	Wallaceburg	F. 1916	A1*
Keltic	845	616	St. Br.	602	1900	Samuel Carrol	Wallaceburg	F. 1912	1
Baron O'Brogie	13985	549	Clyde.	1599	1910	Harrett & Shaw	Wallaceburg	S. 1917	1
Charles Derby Jr.	900	1096	St. Br.	605	1904	Louis Jackson	Wallaceburg	F. 1912	1
George		5060	Grade	5159	1914	John Laprise	Wallaceburg	F. 1916	3*
Arnim		3704	Grade	4053	1911	P. J. Vanesbroeck	Wallaceburg	F. 1916	3*
Mineer		3703	Grade	4054	1911	P. J. Vanesbroeck	Wallaceburg	F. 1916	3*
Roubaix	4108	4315	Per.	4911	1913	J. G. Renwick & Sons	Wheatley	F. 1917	1
Harrison (imp.)	1391	1483	Per.	2445	1907	Herman Smith	Wheatley	F. 1914	1

LAMBTON COUNTY.

King's Frolic (imp.)	12586	1307	Clyde.	1944	1910	W. B. Annett	Alvinston	F. 1916	1*
Dunure David (imp.)	13674	1256	Clyde.	2018	1910	William D. Benstead	Alvinston	F. 1916	A1*
Lauriston Pride	11801	1393	Clyde.	2301	1905	William D. Benstead	Alvinston	S. 1913	1
Airdlie Dix (imp.)		1798	Grade	2204	1909	Campbell Brothers	Alvinston	F. 1916	3
Glenlea Pride	17844	4447	Clyde.	4933	1913	Campbell Brothers	Alvinston	F. 1917	2
Lord of Fife	14843	1479	Clyde.	2375	1909	Campbell Brothers	Alvinston	F. 1916	1
Oro Gilroy	1637	3735	St. Br.	4095	1911	H. A. Gilroy	Alvinston	S. 1918	1
Lord Mack	19052	5130	Clyde.	5611	1916	Frederick B. Kingston	Alvinston	S. 1918	2
Letanna S.	2046	4592	St. Br.	4988	1912	H. H. Laird	Alvinston	S. 1918	1
Togo B.	872	566	St. Br.	356	1906	Owen McNally	Alvinston	S. 1915	1
High Ross	897	1341	St. Br.	1374	1903	J. B. McColl	Arkona	S. 1914	1
King David		401	Grade	589	1903	Samuel Tulloch	Becher	F. 1912	3
Gulf Stream Heir	19144	5065	Clyde.	5561	1916	John F. Burr	Brigden	S. 1918	1
Parkside Major	877	437	Shire	842	1909	John F. Burr	Brigden	F. 1916	1
Viscount Tynedale (imp.)	11881	424	Clyde.	742	1906	George Nicol	Brigden	F. 1914	1
Prince of Lambton	17246	5064	Clyde.	5544	1914	Byron Stephens	Brigden	S. 1918	1
Harold Sphinx		2091	Grade	843	1909	C. C. Watson	Brigden	S. 1917	3
Canadian Prince	10763	2972	Clyde.	1021	1908	Frank Holling	Camlachie	F. 1916	1

Gay Laddie	15680	3753	Clyde.	4356	1913	Frank Holling	Camlachie	F. 1916	1*
McKinney Coast .....	....	2143	Grade	2525	1904	James Montgomery	Camlachie	S. 1915	3
St. Patrick .....	....	567	Grade	388	1900	John Gibbs	Corunna	F. 1912	3
Radigul Jr.	4354	3363	Per.	3796	1907	Jerry & Leo Bedard	Courtright	F. 1914	1
King Junior (imp.)	1068	2857	Shire	2642	1908	Johnston Brothers	Croton	F. 1917	A1
Prince Charles of Lambton.....	1220	4738	Shire	5156	1914	Johnston Brothers	Croton	F. 1916	1*
Gogo (imp.)	1581	403	Per.	596	1906	Garnet J. Delve	Dresden	F. 1914	1
King's Mint (imp.)	13176	1165	Clyde.	1482	1907	Henry Mawlam	Florence	F. 1914	1
Aurelian (imp.)	18325	4696	Clyde.	5130	1912	Brandon Brothers	Forest	F. 1916	A1*
Baron Gartly (imp.)	4789	83	Clyde.	549	1900	Brandon Brothers	Forest	F. 1912	1
Herminius (imp.)	14476	1305	Clyde.	1947	1908	Brandon Brothers	Forest	F. 1917	A1
Rosyth (imp.)	18326	4697	Clyde.	5131	1914	Brandon Brothers	Forest	F. 1916	A1*
Baron Currie (imp.)	7734	608	Clyde.	715	1902	Brandon Brothers & Kingston	Forest	F. 1912	1
Gay Pride	17446	4867	Clyde.	5318	1915	William Gilliard	Forest	S. 1917	1*
Prince McKinney .....	....	4631	Grade	5046	1913	George Kilmer	Forest	S. 1918	3
Baron Revolt	17471	4730	Clyde.	5132	1915	A. Watson & Sons	Forest	F. 1916	1*
Major Sensor	1340	3036	St. Br.	3542	1902	J. W. Johnston	Inwood	F. 1914	1
Prince Ronald (imp.)	5367	2072	Clyde.	2728	1903	James Mills	Inwood	F. 1914	2
Lord Oswald (imp.)	8671	54	Clyde.	327	1907	James T. Smillie	Inwood	F. 1914	1
Plebscite .....	....	1225	Grade	1985	1899	Bert Cruickshank	Mooretown	F. 1914	3
General Joffre	20453	5119	Clyde.	5651	1916	Albert Bass	Oil City	S. 1918	1
Bute Darnley (imp.)	10348	1434	Clyde.	2104	1908	Trott Brothers	Oil City	F. 1916	1
Bailey	1217	4857	Shire	5311	1914	Thomas Bailey	Oil Springs	S. 1917	1*
Bonnie Basset .....	....	1227	Grade	1980	1900	J. L. Boren	Oil Springs	S. 1915	3
Bombie's Footprint	14247	2882	Clyde.	3457	1912	William R. Bridges	Oil Springs	F. 1916	1*
Young Darnley .....	....	2510	Grade	3215	1897	Thomas Naylor	Oil Springs	S. 1916	3
Huit (imp.) .....	....	1583	Grade	601	1907	F. C. Pearce	Oil Springs	F. 1914	3
Porta	1887	4548	St. Br.	4927	1913	Thos. H. Eady	Petrolia	F. 1917	1
Grandeur's Heir	2838	3489	Clyde.	2620	1900	Amos Kerr	Petrolia	F. 1914	1
Jack Wilson	2016	1042	St. Br.	1020	1908	J. W. Kerr	Petrolia	F. 1916	1
Sagamore	14983	3319	Clyde.	3774	1910	Maw & Marshall	Petrolia	F. 1916	1*
Hillhead King (imp.)	15478	2957	Clyde.	3488	1911	George S. Silk	Petrolia	F. 1916	1*
Nello	1941	2554	St. Br.	119	1907	Wesley E. Powers	Point Edward	S. 1916	1
Sir Robert L.	1827	4399	St. Br.	4866	1913	W. H. Haney	Sarnia	F. 1917	1
Darrien	377	3976	St. Br.	4056	1908	Bert Price	Sarnia	F. 1916	1
Bourbon Mann .....	....	3781	Grade	4230	1910	Henry West	Sarnia	S. 1918	3
Bingen Simon .....	....	4714	Grade	5160	1915	John E. Dupuis	Sombra	F. 1916	3*
General Bruce	11278	402	Clyde.	595	1910	John E. Dupuis	Sombra	F. 1916	1*
Pride of Warwick	12119	829	Clyde.	1921	1910	Rory Henry	Sombra	F. 1916	1*
Clandeboyne Godolphin	14794	4526	Clyde.	4864	1912	Henry Curts	Thedford	F. 1917	2
Inca MacGregor	14404	4262	Clyde.	4726	1912	William Rumford	Thedford	F. 1916	1*

*Horse requires inspection.

LAMBTON COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Henry Winters	1136	2791	St. Br.	1112	1902	R. D. Brown	Wallaceburg	F. 1912	1
Herbier (imp.)	2202	278	Per.	1025	1907	David Shannon & Company	Wanstead	F. 1914	1
Milleraig Duke (imp.)	15669	3026	Clyde.	2498	1904	Robert Campbell	Watford	F. 1914	1
John Whitley	1813	4478	St. Br.	4936	1914	Gordon Hollingworth	Watford	S. 1918	1
Baron's Jim	8488	66	Clyde.	1010	1906	William P. Reid	Watford	F. 1914	1
The Distinct	2632	5070	St. Br.	5626	1915	Thos. Roche	Watford	S. 1918	1
Urban (imp.)	1591	3542	Per.	2534	1905	David Skillen	Watford	S. 1914	1
Lothian's Brand (imp.)	10083	1693	Clyde.	1886	1903	Ben Bryson	Wyoming	F. 1914	1
Diana's Chief (imp.)	14446	874	Clyde.	1652	1906	Charles King	Wyoming	F. 1914	2
Charley Carlokin	2270	5017	St. Br.	5502	1915	Thomas McKenna	Wyoming	F. 1917	2
King George	11844	1689	Clyde.	2050	1909	H. Montgomery	Wyoming	S. 1916	1

LANARK COUNTY.

Baron Gibson	14478	3247	Clyde.	673	1910	William J. Graham	Almonte	F. 1916	1*
Prairie Rocket		115	Grade	23	1908	William Lynch	Almonte	S. 1915	3
Gartly Pride 2nd	16181	4173	Clyde.	4654	1911	W. R. More	Almonte	F. 1916	1*
Elrig of Kenmore	17429	4895	Clyde.	5271	1915	John Stewart	Appleton	S. 1917	1*
Cashel Lad	12775	1934	Clyde.	2412	1911	W. A. Nichols	Carleton Place	F. 1916	1*
Samson		255	Grade	671	1909	William Poole	Carleton Place	F. 1916	3
Phonograph 11		4287	Grade	873	1908	William A. Robertson	Carleton Place	F. 1916	3
Young Hero		221	Grade	15	1904	D. J. Thompson	Clayton	F. 1912	3
Young Hypocras		3059	Grade	3541	1912	Hugh Miller	Elphin	F. 1916	3*
Tregarthon (imp.)	309	482	Hack.	751	1902	A. Haddon Wilson	Elphin	F. 1914	1
Jack's Alive		5090	Grade	5578	1907	John A. McDougall	Hopetown	S. 1918	3
Pioneer	7929	407	Clyde.	643	1906	Thomas A. Conroy	Lanark	F. 1914	1
Symmetry's Hero		222	Grade	24	1907	James Legary	Lanark	F. 1914	3
Young Schley		2799	Grade	3322	1910	Henry Pratt	Maberly	F. 1916	3*
Concord Mac	10413	4545	Clyde.	5019	1907	W. B. Yuill	Maberly	S. 1916	1
Belmont	9811	823	Clyde.	1906	1908	Pierce Murphy	Merrickville	F. 1916	1
Baron Rowena 2nd	15255	4426	Clyde.	4748	1913	Charles Russell	Pakenham	F. 1917	1
Mono Prince	601	4981	St. Br.	5443	1911	J. O. Allan	Perth	S. 1917	1*
Anthony Waterer	376	684	Shire	1705	1902	Alfred Cavanagh	Perth	F. 1914	1
Carnation	10569	820	Clyde.	892	1909	Alfred Cavanagh	Perth (R.R. 6)	F. 1916	1

Tom Millerton	721	4052	St. Br.	4517	1907	T. J. Devlin	Perth	.....	S.	1915	1
Johnnie Canuck	16031	1829	Clyde.	16	1902	J. & J. Ebbs	Perth	.....	F.	1912	1
Huqueton (imp.)	1558	543	Per.	376	1907	Thos. H. Ireton	Perth	.....	F.	1914	1
Rudgate Squire (imp.)	1052	2108	Shire	2779	1910	John Johnston	Perth	.....	F.	1916	1*
Monomaniac	242	347	St. Br.	662	1902	John A. Kerr	Perth	.....	F.	1912	1
Patron (imp.)	595	1130	Bel. Dr. ...	2161	1910	James L. P. McLaren	Perth	.....	F.	1916	1*
Baron Killarney	13366	3738	Clyde.	3719	1911	William McLaren	Perth	.....	F.	1916	1*
Judge Red	411	2756	St. Br.	658	1900	McMillan Brothers	Perth	.....	F.	1912	1
Border Laird (imp.)	7301	1274	Clyde.	2073	1904	M. McMullen	Perth	.....	F.	1914	1
Drummond Chief	2556	1275	Clyde.	2072	1899	M. McMullen	Perth	.....	F.	1914	1
Kosaque (imp.)	3255	1380	Per.	2346	1910	M. McMullen	Perth	.....	F.	1916	1*
Billy Shirden .....	.....	4988	Grade	5476	1911	R. M. Powers	Perth (R.R. 6)	.....	S.	1917	3*
County King Jr. ....	.....	4861	Grade	5424	1909	Benjamin Code	Smith's Falls	.....	S.	1917	3
Brooklin Chief	16577	4384	Clyde.	4795	1913	W. A. Bisonette	Smith's Falls	.....	F.	1917	1
Dalton King Jr.	791	4982	Hack.	5225	1914	John E. Joynt	Smith's Falls	.....	F.	1916	1*
Bird Peter	1868	4416	St. Br.	4810	1908	Phillips Brothers	Smith's Falls	.....	S.	1916	1
Gold Hal	030	36	St. Br.	92	1902	E. Sloan & Company	Smith's Falls	.....	F.	1912	1
Dappledale Chief	14280	4174	Clyde.	4651	1912	Robert Wills	Smith's Falls	.....	S.	1917	1*
Brown Acme	13613	3801	Clyde.	4424	1912	John McEwen	Smith's Falls	.....	F.	1916	1*
Baron's Heir	12148	1992	Clyde.	78	1910	W. J. Jones	Waba	.....	S.	1917	1
Curiosity	17029	4807	Clyde.	5248	1914	Duncan Cameron	Wemyss	.....	S.	1917	1*
Johney Farrell .....	.....	4920	Grade	5453	1912	William Farrell	Wemyss	.....	S.	1917	3*
Bourbon King .....	.....	4333	Grade	4732	1914	Hugh S. Hunter	Smith's Falls	.....	F.	1917	3
Aeroplane	591	1137	Hack.	2000	1908	Hugh S. Hunter	Smith's Falls	.....	S.	1917	1

LEEDS COUNTY.

Twynholm Chief (imp.)	7244	4483	Clyde.	4894	1905	Henry R. Crummy	Athens	.....	S.	1916	1
Prince Royal 2nd	879	4477	Fr. Can. ...	4831	1910	William Neddo	Athens	.....	F.	1917	1
Sidney (imp.)	3582	1172	Per.	1193	1898	James Pearson & Son	Brockville	.....	F.	1912	1
Generalissimo	1304	2844	St. Br.	3320	1904	Proctor Giffin	Brockville	.....	F.	1914	1
Justo the Great	1988	4591	St. Br.	4980	1913	Proctor Giffin	Brockville	.....	F.	1917	1
Prince Dodge Ruby	17768	4580	Clyde.	4993	1911	James Pearson & Son	Brockville	.....	S.	1916	1*
Idalion	3917	3942	Per.	4438	1912	Albert Goff	Gananoque	.....	F.	1916	1*
Gautelet (imp.)	1525	1166	Per.	1469	1906	The Front of Leeds & Lans- downe Percheron Horse Syndicate	Gananoque	.....	S.	1915	1
Fred .....	.....	290	Grade	1369	1902	William H. Cook	Lansdowne	.....	S.	1914	3
Bright Guard (imp.)	13410	3999	Clyde.	4199	1910	George E. Jackson	Lyn	.....	F.	1916	1*

*Horse requires inspection.

LEEDS COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Royal George .....	.....	4061	Grade	4570	1905	John T. Slack	Lyndhurst	S. 1915	3
Patron .....	.....	1195	Grade	703	1908	Wm. Spicer	Newboro	F. 1916	3
Percheron William .....	.....	2397	Grade	3113	1904	Mathew Davis	North Augusta	F. 1914	3
Northland Baron	5848	316	Clyde.	139	1905	Joseph Gainford	Seeley's Bay	S. 1915	1
Shea Alcone Jr. ....	.....	5096	Grade	5631	1915	Jos. Seabrook	Seeley's Bay	S. 1918	3
Leeds Percheron .....	.....	924	Grade	1535	1909	Jas. A. Whitmore	Toledo	F. 1916	3
Lord MacGregor 2nd	16376	4740	Clyde.	5229	1914	Jas. A. Whitmore	Toledo	F. 1916	1*
Sir Laird	17554	5041	Clyde.	5516	1915	Jas. A. Whitmore	Toledo	F. 1917	1
Eagle Patch	2072	4684	St. Br.	5104	1913	W. C. Fredenburgh & D. A. Curtis	Westport	F. 1916	1*

LENNOX AND ADDINGTON.

Prince of Cairndale	13649	1388	Clyde.	58	1910	Asa A. Armstrong	Adolphustown	F. 1916	1*
Ross MacGregor	15203	4042	Clyde.	4258	1912	Alfred Milligan	Centreville	F. 1916	1*
Joe the Banker Jr. ....	.....	206	Grade	373	1903	W. R. Cade	Cloyne	F. 1912	3
La Premiere (imp.)	1356	443	Per.	888	1907	W. S. Fenwick & Sons	Enterprise	F. 1914	1
Sir Donald's Pride (imp.)	13030	1423	Clyde.	1662	1910	H. A. Jifkins & E. A. Murphy	Erinsville	F. 1917	1
Sir John Simpson	10910	3074	Clyde.	3251	1908	John Stinson	Erinsville	S. 1917	1
Rommay (imp.)	4094	1191	Per.	1286	1900	John Dickens	Erinsville	F. 1912	1
Jerry .....	.....	4948	Grade	5465	1911	Jos. Beauderie	Harwood Lake	S. 1917	3*
Golden Prince .....	.....	238	Grade	413	1901	John S. McAlister	Marysville	F. 1912	3
Bindare	1612	3924	St. Br.	4412	1912	D. R. Benson	Napanee	F. 1917	1
Commissioner .....	.....	191	Grade	174	1903	John McCumber	Napanee	F. 1914	3
Kleber (imp.)	1390	147	Per.	705	1898	George S. Chambers	Napanee	F. 1914	1
Grey Squirrel	1459	150	Per.	769	1909	George S. Chambers	Napanee	F. 1916	1
John L. ....	.....	4941	Grade	5223	1913	George S. Chambers	Napanee	F. 1916	3*
Oddfellow .....	.....	205	Grade	415	1909	Norman O'Neil	Napanee (R.R. 3)	S. 1917	3
Dick Quintin, Jr. ....	.....	4440	Grade	4888	1913	Chester Card	Odessa	F. 1917	3
Young Duke .....	.....	1201	Grade	318	1904	George Reed	Sandhurst	F. 1912	3
Abe Dillon	1822	2555	St. Br.	782	1901	Joseph Bray	Stella	F. 1914	1
Directum Murphy	1934	5123	St. Br.	5668	1915	Joseph Bray	Stella	S. 1918	1
Cheri (imp.)	3741	1936	Per.	2091	1902	W. H. Preston & A. E. Howard	Stella	S. 1913	1
Truswell Jr. ....	.....	3833	Grade	308	1902	Frank Wales	Switzerville	S. 1915	3
Romulus .....	.....	241	Grade	457	1910	T. A. Martin	Tamworth	S. 1917	3*
Dave .....	.....	4929	Grade	5454	1906	John Gilmore	Vennachar	S. 1917	3
Tone .....	.....	4971	Grade	5463	1913	John E. Irish	Vennachar	S. 1917	3*

LINCOLN COUNTY.

The Laird	13961	137	Clyde.	.... 710	1909	Stanley Young	Caistor Centre	F. 1916	1
Glenleith of Larkin Farm.....	16935	5025	Clyde.	.... 5140	1914	William Crawford	Niagara-on-the-Lake ..	F. 1916	1*
Kinleith Pride (imp.)	12455	2654	Clyde.	.... 813	1907	John D. Larkin	Queenston	F. 1914	1
Pilot of Glencairn	15126	3686	Clyde.	.... 4152	1912	John D. Larkin	Queenston	F. 1916	1*
Maplehurst Rosemount .....	....	5073	Grade	.... 5570	1916	Lucien Moote	Silverdale Sta.	S. 1918	3
Bingen Royal	2424	3020	St. Br.	.... 3569	1910	A. D. Middaugh	Smithville	F. 1916	1*
Meteor .....	....	3535	Grade	.... 3688	1897	A. D. Middaugh & H. H.			
						Hitchcock	Smithville	F. 1914	3
Goble	1386	1377	St. Br.	.... 2225	1905	I. E. Springstead	Smithville	F. 1914	1
Baron Kelton (imp.)	7916	470	Clyde.	.... 1052	1907	C. H. Claus & Son	St. Catharines	F. 1914	2
Blacon of up to Time	12446	2945	Clyde.	.... 3510	1911	J. Bligh Hostetter	St. Catharines	F. 1916	1*
Fitz Bingen	2005	1929	St. Br.	.... 2005	1901	T. A. Crow	Toronto	S. 1915	1
						J. E. Swartz, Agent	St. Catharines.		
Ithamar	2227	4731	St. Br.	.... 5293	1914	T. A. Crow	Toronto	S. 1917	1*
						J. E. Swartz, Agent	St. Catharines.		
John R. Hal	0100	4805	St. Br.	.... 4773	1907	T. A. Crow	Toronto	S. 1916	1
						J. E. Swartz, Agent	St. Catharines.		
Young Galiher .....	....	3808	Grade	.... 4427	1913	J. E. Swartz	St. Catharines	F. 1916	3*
Siberier's Heir .....	....	1729	Grade	.... 2462	1907	E. E. Hannigan	Vineland	F. 1914	3
Prince Glancine	3113	689	Per.	.... 876	1910	J. H. Mittlefehldt	Wellandport	F. 1916	1*

MIDDLESEX COUNTY.

Black Baronet (imp.)	10350	1168	Clyde.	.... 999	1908	Chas. Bean & Sons	Ailsa Craig	F. 1916	2
Hall Caine (imp.)	13933	2087	Clyde.	.... 2813	1909	Chas. Bean & Sons	Ailsa Craig	F. 1916	1
Pentland Pride (imp.)	9552	812	Clyde.	.... 1876	1905	Chas. Bean & Sons	Ailsa Craig	F. 1914	1
King's Courtier (imp.)	12556	2070	Clyde.	.... 2694	1910	Henry McClurg	Ailsa Craig	F. 1916	1*
Killellan Chief imp.)	11582	439	Clyde.	.... 848	1907	Donald McIntyre	Ailsa Craig	S. 1915	1
Young Lacedemone .....	....	180	Grade	.... 692	1904	Geo. W. Jeffrey	Appin	S. 1914	3
Branton Surprise (imp.)	10349	438	Clyde.	.... 845	1907	Alex. F. McTavish & Son ..	Appin	F. 1914	1
Royal Dennis	16364	4551	Clyde.	.... 4975	1913	Richard Pettit	Appin	F. 1917	1
Prince of Roxborough 2nd	15958	1213	Clyde.	.... 2095	1909	E. G. Legge	Belmont	F. 1916	1
Jelly's Favourite	18941	4786	Clyde.	.... 5306	1914	George Weir	Belmont	S. 1917	1*
Labour (imp.)	3853	2919	Per.	.... 3472	1911	John D. McGregor	Byron	F. 1916	2*
Tommy McNamara	7	1627	St. Br.	.... 2386	1903	Edgar Darling	Clandeboye	F. 1914	1
Bright Star	11536	2060	Clyde.	.... 2486	1907	Currie Brothers	Denfield	F. 1914	1
Sidon	4725	1810	Gr. Co.	.... 2380	1905	H. T. Rigney	Denfield	F. 1914	1

*Horse requires inspection.

MIDDLESEX COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Star	10638	2500	Clyde.	3054	1910	George Devlin	Glencoe	F. 1916	2*
Golden Glow	11275	1918	Clyde.	1809	1909	James Gilbert	Glencoe	F. 1916	1
Imperial Royal	2673	494	Per.	1352	1905	W. W. Gordon	Glencoe	F. 1914	2
Dillard Payne	0154	5069	St. Br.	5625	1906	Robert McAlpine	Glencoe	S. 1918	1
Blackband (imp.)	6194	25	Clyde.	1313	1901	D. K. McRae	Glencoe	F. 1914	1
Ascot's Heir (imp.)	9646	2380	Clyde.	763	1904	Morley Wass	Granton	F. 1914	1
Gladiator 2nd	17237	4348	Clyde.	4791	1913	A. M. Dickie	Hyde Park	F. 1917	1
King's Court	19050	4882	Clyde.	5397	1915	John McIntosh	Ilderton	S. 1917	1*
King's Herald (imp.)	7203	564	Clyde.	275	1901	Joseph Whimp	Ilderton	F. 1912	1
Glen McQueen	17439	5066	Clyde.	5562	1915	Robert Denning	Kerwood	S. 1918	1
Grandee's Last (imp.)	13947	913	Clyde.	1573	1911	James Petch & Sons	Kerwood	F. 1916	1*
Billy Boy	15753	3105	Clyde.	3562	1911	B. D. Sells	Komoka	F. 1916	1*
Blacon Beau (imp.)	8127	918	Clyde.	1588	1904	Thos. Crapp	Lambeth	S. 1915	1
Victor .....	.....	4443	Grade	4027	1901	Alex. D. Jackson	Lambeth	F. 1914	3
Wild Mayo .....	.....	4679	Hunter	5099	1904	Adam Beck	London	S. 1916	1
Lord Armstrong (imp.)	9309	3809	Clyde.	4151	1904	Irwin Harris & Thos. Crapp	London	S. 1915	1
Matchless McKinney	1137	2789	St. Br.	1133	1905	Johnston Brothers	London	S. 1915	1
Medio McKinney	1138	2790	St. Br.	1134	1906	Johnston Brothers	London	F. 1914	1
The Governor-General	899	3778	St. Br.	1118	1909	Johnston Brothers	London	F. 1916	1
Red Heir .....	.....	2593	St. Br.	1131	1906	Harry Raison	London	S. 1915	1
Dunure Friendship (imp.)	13675	1252	Clyde.	2022	1911	Wilkinson & Guest	London (R.R. 5)	F. 1916	1*
Kothorne (imp.)	3004	518	Per.	559	1910	Wilkinson & Guest	London	F. 1916	1*
Black Knight	14261	1935	Clyde.	2192	1910	Duncan A. McLean	Melbourne	F. 1916	2*
Dell Heart	1705	4724	St. Br.	5144	1914	George Pike	Mossley	F. 1916	1*
Handsome Chief (imp.)	8750	1400	Clyde.	480	1904	Stephen J. Bond	Mount Brydges	F. 1912	1
King's Arms (imp.)	6117	493	Clyde.	1320	1904	Stephen J. Bond	Mount Brydges	S. 1914	1
Bepo .....	.....	1777	Grade	2168	1905	G. A. Carruthers	Mount Brydges	S. 1913	3
Toupet (imp.)	1066	1179	Per.	10	1905	J. H. Thompson	Mount Brydges	F. 1914	1
Sir Audubon .....	.....	2617	Grade	2470	1911	T. Alderson	Parkhill	F. 1916	3*
Peter V. Dillon	1895	4324	St. Br.	4768	1912	Chas. P. Barrett	Parkhill	S. 1918	2
Peter Gumaer	0133	4903	St. Br.	5383	1914	Chas. P. Barrett	Parkhill	S. 1917	1*
Lord Gray (imp.)	12390	67	Clyde.	1007	1910	Andrew Erskine	Parkhill	F. 1917	A1
Guelph Performer	89	1163	Hack.	1538	1899	D. A. Graham	Parkhill	S. 1913	1
John D.	6163	4767	Per.	5331	1908	D. A. Graham	Parkhill	S. 1917	1
Kif-Kif (imp.)	3760	3236	Per.	3710	1910	D. R. McKenzie & J. W. &	Parkhill	S. 1917	1
Woodlands Performer	68	2156	Hack.	1061	1896	H. A. Ross	Parkhill (R.R. 7)	F. 1916	1*
						David R. McKenzie	Parkhill	F. 1912	1

Prince Triumph	14796	2216	Clyde.	.....2955	1911	Peter McKinnon	.....Parkhill	.....F. 1917	1
Sir Simon Romeo	16919	4083	Clyde.	.....4612	1912	J. D. McPhee	.....Parkhill	.....F. 1916	1*
Dunure Link (imp.)	13042	1091	Clyde.	.....729	1902	Wm. Ross, Jr.	.....Parkhill (R.R. 7)	.....F. 1912	1
Eel of the Nile	2026	4666	St. Br.	.....5082	1913	A. G. Shortt	.....Parkhill	.....S. 1918	2
Gatignol (imp.)	1127	118	Per.	.....781	1906	Elwood Zavitz	.....Poplar Hill	.....F. 1914	1
Mamaluke (imp.)	14299	1431	Clyde.	.....2058	1908	Elwood Zavitz	.....Poplar Hill	.....F. 1916	1
Pride of Roxburgh	10797	1190	Clyde.	.....1359	1909	John H. & Frank Hicks	.....Putnam	.....F. 1916	1
Cerus (imp.)	30	1650	Per.	.....2605	1900	Allen Elliott	.....Strathroy	.....F. 1914	1
King of the Dale	520	2994	St. Br.	.....3512	1911	J. W. Galsworthy	.....Strathroy	.....F. 1916	1*
Lacon International	012	2474	St. Br.	.....2697	1905	Edward P. Howe	.....Strathroy	.....F. 1914	1
McIntosh Best	17877	4098	Clyde.	.....4497	1912	McIntosh Brothers	.....Strathroy	.....F. 1916	1*
Aldino	.....	5177	Grade	.....5655	1909	Colin McKeigan	.....Strathroy	.....S. 1918	3
Togo	.....211	1268	St. Br.	.....2031	1903	Colin McKeigan	.....Strathroy	.....F. 1914	1
Lord Marcellus (imp.)	15479	2956	Clyde.	.....3487	1910	Colin McKeigan	.....Strathroy	.....F. 1917	1
Major	.....6146	4883	Per.	.....5412	1913	Colin McKeigan	.....Strathroy	.....S. 1917	1*
Sir Romeo	.....	1240	Grade	.....1916	1906	C. McKeigan & L. Knight	.....Strathroy	.....F. 1914	3
Champion King George	16862	5045	Clyde.	.....5623	1914	Wm. Henderson	.....Thorndale	.....S. 1918	1
All Belsire	2528	5044	St. Br.	.....5558	1915	Walter Riddell	.....Thorndale (R.R. 1)	.....S. 1918	1
Baron of Vimy Ridge	20591	5182	Clyde.	.....5690	1916	Chas. Weston	.....Thorndale (R.R. 4)	.....S. 1918	1
Drefus	3282	498	Per.	.....1409	1898	Joseph Moore	.....Walkers	.....F. 1914	1
Unko	183	2265	St. Br.	.....2894	1905	P. J. Kearns	.....Wardsville	.....S. 1914	1
Dunure Acknowledgment	8457	1385	Clyde.	.....1113	1906	Robert Brown	.....Wilton Grove	.....F. 1914	1
Walter Gearing	910	1395	St. Br.	.....1392	1908	Robert Brown	.....Wilton Grove	.....F. 1916	1

NORFOLK COUNTY.

Samson	.....	1205	Grade	.....99	1898	John Finch	.....Clear Creek	.....F. 1912	3
Count of Roseberry	109	2992	Hack.	.....2226	1900	J. W. Franklin	.....Clear Creek	.....F. 1914	1
Napoleon	.....	1048	Grade	.....1900	1908	Wilbur Sovereign	.....Delhi	.....F. 1916	3
Echao 2nd	.....	307	Grade	.....1485	1908	W. J. McCord	.....King Lake	.....S. 1916	3
Carenot (imp.)	14657	2327	Clyde.	.....2946	1908	John Cameron	.....Langton	.....F. 1916	1
North Briton (imp.)	9466	108	Clyde.	.....336	1905	T. H. Collings	.....Langton	.....F. 1914	1
Pride of Columbie	11547	674	Clyde.	.....98	1909	T. H. Collings	.....Langton	.....S. 1917	1
Wide Awake	.....	966	Grade	.....1833	1901	Hiram Trembley	.....La Salette	.....F. 1914	3
Royal George	4698	4142	Per.	.....4600	1912	John H. Wheeler	.....Lynedoch	.....F. 1916	1*
Sir Donald, Jr.	.....	2320	Grade	.....3036	1906	D. H. Misner	.....Lynedoch	.....F. 1914	3
Magendia Tramp	3731	2447	Per.	.....725	1898	F. R. Foster	.....Port Rowan	.....F. 1914	2
Cadet (imp.)	1600	2954	Per.	.....607	1905	Ed. Meredith & J. E. Blayney	.....Nixon	.....S. 1915	1
Sir Sam	5506	4733	Per.	.....5137	1914	Archie M. Collver	.....Nixon (R.R. 1)	.....F. 1916	1*
Haimon	1600	2616	Gr. Co.	.....2450	1904	John Law and Wm. Veit	.....Simcoe	.....S. 1915	1

*Horse requires inspection.

NORFOLK COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Hal H. ....	....	3046	Grade	623	1905	G. E. Everett	Simcoe	F. 1914	3
Juvenil .....	....	5076	Grade	5588	1911	Milton Porter	Simcoe	S. 1918	3
Baron Howes	7791	3281	Clyde.	520	1905	W. C. Everett	Simcoe	F. 1914	1
Metallis King	465	15	St. Br.	1349	1903	K. A. Shaw	Simcoe	S. 1914	1
Argyle Acme	20496	5206	Clyde.	5675	1914	Geo. Cockrell	Scotland (R.R. 1)	S. 1918	1
Doc. Stanton .....	....	1211	Grade	2102	1904	William Fredenburg	Walsh	F. 1914	3
Bonniere	3105	4303	Per.	4790	1912	Louis Beemer	Waterford	F. 1917	1
Cratere (imp.)	1059	2416	Per.	2968	1905	Louis Beemer	Waterford	F. 1914	1
Clodion	3648	2189	Per.	1047	1907	J. R. Irwin	Waterford	F. 1914	2
Petrograd	4933	5030	Per.	5142	1915	J. R. Irwin	Waterford	F. 1916	1*

NORTHUMBERLAND COUNTY.

Lord Beachly .....	....	1786	Grade	2383	1904	William Ferguson	Baltimore	S. 1916	3
Inverurie Chief (imp.)	11683	1785	Clyde.	2384	1909	John Dillon	Burnley	F. 1916	1
King Edward	1973	428	Per.	786	1905	James Irwin, Jr.	Campbellford	F. 1914	1
Craigie Junior	17080	4358	Clyde.	4833	1914	Alfred Merrell	Campbellford	F. 1917	1
MacInnes 2nd	4098	2659	Clyde.	3031	1901	George Stanbury	Campbellford	S. 1914	1
Prince Wilks .....	....	3981	Grade	4219	1912	D. J. Arkles	Castleton	F. 1916	3*
Nydo	2021	4508	St. Br.	4880	1914	Andrew Peters	Castleton	F. 1917	1
Willie De .....	....	945	Grade	170	1906	Stanley McBride	Centreton	F. 1914	3
Kinellar Prince (imp.)	1399	1288	Clyde.	1995	1910	George Isaac	Cobourg	F. 1916	1*
Kingship	855	4338	Thor.	4742	1907	Lily A. Livingston	Cobourg	S. 1916	1
Stanhope 2nd (imp.)	140	2230	Thor.	1606	1899	Lily A. Livingston	Cobourg	S. 1915	1
Lord Chancellor	2658	3165	Clyde.	3428	1896	Joshua McCarthy	Cobourg	S. 1914	1
Ned Fenelon	5683	4718	Per.	5181	1914	Frank Pillsworth	Cobourg	F. 1916	1*
Jamour (imp.)	3058	3006	Per.	3327	1909	Herbert Parry	Frankford	S. 1916	1
Robert Montrave	20265	5205	Clyde.	5674	1915	Thomas Boyle	Fenella (R.R. 1)	S. 1918	1
J. Leviathan	2682	2961	Per.	3493	1911	W. L. Anderson	Hoards Station	F. 1916	2*
Sir Wilfrid	6502	2226	Clyde.	2048	1896	John C. Haig	Hoards Station	S. 1915	1
Brilliant Light	976	1695	St. Br.	1708	1904	J. C. Anderson	Morganston	F. 1914	1
Juvenlite (imp.)	3856	2876	Per.	3318	1909	J. C. Anderson	Morganston	S. 1916	1
Baron's Glory	17743	4423	Clyde.	4928	1914	Thomas Carew	Roseneath	F. 1917	1
Baron's Choice	9357	617	Clyde.	892	1907	Wilfred Carew	Roseneath	F. 1914	1

*Horse requires inspection.

Nuthurst W.	1573	3613	St. Br.	893	1897	Eldridge Thackeray	Roseneath	F. 1912	1
Paturot (imp.)	1972	1818	Per.	2512	1904	J. H. Gainer	S. Monaghan	F. 1914	1
Peter The Hermit	....	1615	Grade	2214	1905	C. V. Noble Crosby	Trenton	F. 1914	3
Gay Baron	8478	2090	Clyde.	2819	1906	J. T. Parks	Trenton (R.R. 3)	F. 1914	1
Lionel Baron	18188	4628	Clyde.	5077	1914	Lewis B. Stinson	Trenton	S. 1918	1
Young Rys-Hawk	....	2489	Grade	2624	1903	William Dingman	Warkworth	F. 1914	3
Blacon St. Clair	13354	3772	Clyde.	4211	1911	Burton Ferguson	Wooler	F. 1916	1*

ONTARIO COUNTY,

Carruchan Chief	12904	35	Clyde.	366	1909	J. J. Coughlin	Anten Mills	F. 1916	1
Member Sphinx	987	1807	St. Br.	1928	1900	J. J. Coughlin	Anten Mills	S. 1913	1
Ben Lomond	18382	4745	Clyde.	5316	1915	Lew Richardson & Sons	Ashburn	S. 1917	1*
Tara Baron	17148	5125	Clyde.	5672	1913	E. E. Wright	Ashburn	S. 1918	1
Celtin Premier	16668	4414	Clyde.	4749	1913	George Grant	Beaverton	F. 1917	1
Prince Marshall	10948	904	Clyde.	1413	1908	Chas. Thos. Haines	Beaverton	S. 1918	2
Ardimersay Duke (imp.)	14240	3121	Clyde.	2115	1905	Chas. E. Hepburn	Beaverton	S. 1913	1
Edward Moir (imp.)	13172	781	Clyde.	1492	1909	Hodgkinson & Tisdale	Beaverton	S. 1917	1
Koumis (imp.)	3850	2874	Per.	3386	1910	Hodgkinson & Tisdale	Beaverton	S. 1918	1
Miroton (imp.)	4444	3713	Per.	4246	1912	Hodgkinson & Tisdale	Beaverton	F. 1916	A1*
Celtic Champion	12242	1795	Clyde.	2172	1909	Donald McRae	Beaverton	S. 1917	2
Mack Baron	15959	3096	Clyde.	3651	1911	Donald McRae	Beaverton	S. 1917	1*
Kelton	19067	4869	Clyde.	5339	1915	Finley McRae	Beaverton	S. 1917	1*
Prince Acme	15573	4516	Clyde.	4999	1913	James Innes	Blackwater	S. 1918	1
Rock Fullerton	....	4188	Grade	4636	1903	D. McPhail	Blackwater	S. 1915	3
Royal Everett	16351	3754	Clyde.	4248	1912	Patrick Gaughan	Brechin	F. 1916	1*
Moneriette Albion (imp.)	12800	1676	Clyde.	1219	1909	John Vipond	Brooklin	S. 1917	1
King's Courtship (imp.)	14115	1677	Clyde.	1217	1906	Oscar Wilson	Brougham	F. 1914	1
Ascot Pride	19385	5183	Clyde.	5729	1916	Geo. Davidson & Sons	Cherrywood	S. 1918	1
Wildbrino Chief	1291	4244	St. Br.	2920	1899	Samuel Ainsworth	Cannington	F. 1914	1
Gold Rod	17213	4991	Clyde.	5481	1915	Edward Lambert	Cannington	S. 1917	1*
Baron Elect	1765	2286	St. Br.	1919	1901	John H. Pringle	Cannington	F. 1914	2
Sir Alexander (imp.)	6665	2448	Clyde.	1339	1902	James Evans	Claremont	F. 1914	1
Royal Tie (imp.)	11890	26	Clyde.	1312	1908	Graham Brothers	Claremont	S. 1916	1
Baron's Stamp (imp.)	18259	4769	Clyde.	5369	1911	Graham Brothers	Claremont	S. 1917	1*
Chief Guardian (imp.)	18267	4798	Clyde.	5371	1914	Graham Brothers	Claremont	F. 1917	A1*
Colorito	333	1114	Hack.	2112	1902	Graham Brothers	Claremont	F. 1917	A1
Coniston (imp.)	9560	1339	Clyde.	1614	1906	Graham Brothers	Claremont	F. 1914	1
Golden Bar (imp.)	8666	380	Clyde.	552	1906	Graham Brothers	Claremont	S. 1917	1
Royal Line (imp.)	11231	1270	Clyde.	2216	1908	Graham Brothers	Claremont	S. 1917	1

*Horse requires inspection.

ONTARIO COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Flashgate	20373	5078	Clyde.	5608	1915	E. F. Percy	Claremont	S. 1918	1
Royal Salute	848	4686	Hack.	5113	1911	E. F. Percy	Claremont	F. 1916	1*
Belle Boy (imp.)	8524	1290	Clyde.	1988	1905	Nelson Wagg	Claremont	F. 1917	A1
Bonus 2nd	588	5087	Hack.	5642	1909	Nelson Wagg	Claremont	S. 1918	1
Gay Baron Boy	20339	5088	Clyde.	5643	1914	Nelson Wagg	Claremont	S. 1918	1
Model's Honour	19688	5001	Clyde.	5495	1915	Nelson Wagg	Claremont	F. 1917	1
Shawano King (imp.)	15708	4463	Clyde.	4760	1913	Nelson Wagg	Claremont	S. 1918	1
Baron Arthur	18362	4851	Clyde.	5200	1912	Smith & Richardson	Columbus	F. 1916	A1*
Baron Crawford (imp.)	9592	758	Clyde.	1407	1908	Smith & Richardson	Columbus	S. 1917	1
Everard (imp.)	16333	4848	Clyde.	4327	1913	Smith & Richardson	Columbus	F. 1916	1*
Great Eastern (imp.)	15162	3766	Clyde.	3425	1907	Smith & Richardson	Columbus	F. 1914	1
Helsington Sportsman (imp.) ..	15164	3649	Clyde.	3423	1911	Smith & Richardson	Columbus	S. 1918	1
Knight of Maryfield (imp.)	7760	5427	Clyde.	5026	1904	Smith & Richardson	Columbus	S. 1916	1
Royal Design	17286	4849	Clyde.	4967	1914	Smith & Richardson	Columbus	S. 1917	A1*
Royal Favour	18361	4850	Clyde.	5199	1910	Smith & Richardson	Columbus	F. 1917	A1
Tressillian (imp.)	16332	4084	Clyde.	4234	1911	Smith & Richardson	Columbus	S. 1918	1
Brogie Lad	12814	744	Clyde.	1218	1909	K. R. Marshall	Dunbarton	S. 1917	1
Stanley Champion .....	.....	955	Grade	1740	1905	Charles Swanson	Emberson	S. 1914	3
Aldorf .....	.....	275	Grade	1039	1910	S. H. Pugh	Glen Major	S. 1917	3*
Edward Darnley (imp.)	9609	216	Clyde.	1200	1904	R. J. Dafoe	Green River	F. 1912	1
Lord Erskine Cairndale	17038	4394	Clyde.	4858	1914	R. Milne & Sons	Locust Hill (R.R. 1) ..	F. 1917	A1
Royal Ivory Fashion	18068	4692	Clyde.	5123	1915	Alfred Carmichael	Myrtle	F. 1916	1*
Acme Pride	19334	4980	Clyde.	5470	1914	William Hopkins	Myrtle Station	S. 1917	1*
Baron Elect (imp.)	5629	746	Clyde.	1257	1903	W. H. Pugh	Myrtle Station	F. 1912	1
Cairnbrogie Heir	18299	5128	Clyde.	5666	1915	W. H. Pugh	Myrtle Station	S. 1918	1
Terrington Bellman (imp.)	294	745	Hack.	1256	1903	W. H. Pugh	Myrtle Station	F. 1912	1
King Saul (imp.)	9588	2517	Clyde.	3116	1907	Charles Groat	Oshawa	F. 1914	1
Harry Wilkes .....	.....	4395	Grade	4860	1901	William Harvey	Oshawa (R.R. 2)	S. 1916	3
Gallant Refiner	16972	5124	Clyde.	5669	1914	David Annan, Sr.	Pickering	S. 1918	1
Brown Gallant	17019	4227	Clyde.	4688	1913	J. S. Beare	Pickering	F. 1916	2*
Lord Regent	1413	3717	St. Br.	4229	1912	Thos. Maddaford	Pickering	F. 1916	1*
College Dewey	0119	4855	St. Br.	5273	1914	A. G. Dowson	Port Perry	S. 1917	1*
Pomeroy	777	3032	St. Br.	3409	1909	A. G. Dowson	Port Perry	S. 1916	1
Dunure Laddie	16710	5035	Clyde.	5557	1914	W. J. Henders & Son	Port Perry	S. 1918	1
Bright Smile (imp.)	13840	1124	Clyde.	1245	1909	Alonzo Nidderly	Port Perry (R.R. 2) ..	S. 1917	2
Chattan's Buchlyvie	14350	3826	Clyde.	4129	1912	W. C. Platten	Port Perry	F. 1916	1*
Clan Favourite (imp.)	10654	1169	Clyde.	1030	1905	Joseph Stone	Port Perry	F. 1914	1

Prince of the Park (imp.)	9687	3480	Clyde.	....3503	1907	George Kydd	.....Sandford	.....	F. 1914	1
Prince Dunure	20528	5207	Clyde.	....5684	1915	W. H. Leask	.....Seagrave (R.R. 2)	....	S. 1918	1
Royal Eastfield Lad	8166	2069	Clyde.	....2677	1904	Nelson McDonald	.....Seagrave	.....	S. 1914	1
Cairngorm	9274	787	Clyde.	....1815	1908	Samuel J. Gilbert	.....Sebright	.....	S. 1917	2
Craigin of Brookdale	11066	694	Clyde.	....907	1909	Alfred Yakley	.....Stouffville	.....	S. 1917	2
Hillhead Comet (imp.)	14710	1284	Clyde.	....2003	1909	John Fallowdown	.....Sunderland	.....	F. 1916	2
Speers	951	1364	St. Br.	....936	1903	Hall & Shields	.....Sunderland	.....	F. 1912	1
Silver Clink	5308	3318	Clyde.	....3395	1904	Edward Kerr	.....Sonya	.....	F. 1914	1
Baron Smith (imp.)	5313	698	Clyde.	....949	1904	John Warren	.....Udney	.....	F. 1912	1
Floriston (imp.)	15258	3112	Clyde.	....3663	1911	Alexander McGregor	.....Uxbridge	.....	F. 1916	1*
Glen Dhu Hero	....	3605	Grade	....3967	1905	Thomas William Ross	.....Whitby	.....	S. 1915	3
Examiner (imp.)	18262	4802	Clyde.	....5375	1914	Henry Thompson	.....Zephyr	.....	S. 1917	1*
High Tide (imp.)	13838	1112	Clyde.	....1210	1908	Henry Thompson	.....Zephyr	.....	S. 1917	1

OXFORD COUNTY.

Wilkes McEwen	....	3483	Grade	....3604	1908	Richard Parsons	.....Beachville	.....	F. 1916	3
Prince Robert	12755	4962	Clyde.	....1480	1911	George Smith	.....Brooksdale	.....	S. 1917	2*
Pat L. McGregor	957	1904	St. Br.	....2448	1901	F. N. Case	.....Burgessville	.....	S. 1915	1
King of the Saxons (imp.)	13760	711	Clyde.	....1265	1910	W. B. Parker	.....Cassel	.....	F. 1916	1*
Longtemps (imp.)	4466	3990	Per.	....4085	1911	W. B. Parker	.....Cassel	.....	F. 1916	1*
Horatio (imp.)	8111	1100	Clyde.	....1623	1905	Kyle Brothers	.....Drumbo	.....	F. 1914	1
Canadian Boy	....	4344	Grade	....4766	1911	Harry Bell	.....Eastwood	.....	F. 1917	3
Sky Pilot	855	2513	St. Br.	....1105	1900	R. J. Chamberlain	.....Embro	.....	F. 1914	1
Pride of Skeog (imp.)	11687	3926	Clyde.	....1768	1908	D. E. A. & C. Meadows	.....Embro	.....	S. 1915	1
Pride of Ireland	7173	3573	Clyde.	....3934	1905	Robert Kent	.....Embro	.....	F. 1915	2
Mucius (imp.)	13896	352	Clyde.	....334	1903	Henry E. Schaefer	.....Embro	.....	F. 1912	1
Gregory Dare	1645	4369	St. Br.	....4915	1913	John H. McKay	.....Harrington	.....	F. 1917	2
Nogent	4458	4561	Per.	....4994	1913	G. D. Hutchison	.....Ingersoll	.....	F. 1917	1
Crown Dick	16947	4448	Clyde.	....4823	1914	George Chesney	.....Innerkip	.....	F. 1917	1
Dunure Marquis	13011	2074	Clyde.	....2744	1911	C. Gill and E. Moulton	.....Mount Elgin	.....	F. 1916	1*
Duke of Ardlethan	17159	4453	Clyde.	....4789	1914	William M. Fletcher	.....Ostrander	.....	F. 1917	1
Bohrangus 2nd	9541	323	Clyde.	....163	1909	H. C. Treffry	.....Otterville	.....	S. 1917	1
Golden Lad	17001	4234	Clyde.	....4676	1912	Andrew S. Fleming	.....Springford	.....	F. 1916	1*
Athol King (imp.)	9178	140	Clyde.	....713	1907	P. Herold	.....Tavistock	.....	S. 1916	1
Coronado (imp.)	254	537	Hack.	....1100	1900	Wm. & Henry Lingelbach	.....Tavistock	.....	F. 1912	1
Wilksmore	....	2673	Grade	....2990	1904	Adam Mansz	.....Tavistock	.....	S. 1915	3
Lassis (imp.)	3920	4309	Per.	....4777	1911	Ratz & Herold	.....Tavistock	.....	F. 1917	A1
Jeu (imp.)	4957	4530	Per.	....4979	1909	Daniel Ruby	.....Tavistock	.....	S. 1916	1
Crown King	18915	4755	Clyde.	....5126	1914	George Wettlaufer	.....Tavistock	.....	F. 1916	1*

*Horse requires inspection.

OXFORD COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Royal Friendship	18786	5046	Clyde.	.....5624	1915	Wm. Furse	.....Thamesford	S. 1918	1
Seafeld Chief (imp.)	12623	1970	Clyde.	.....2821	1909	James Henderson	.....Thamesford	S. 1918	1
Black Prince	4832	4914	Per.	.....5151	1914	R. & W. B. McFarlan	.....Thamesford	F. 1916	1*
Rufin (imp.)	1061	577	Per.	.....230	1906	The Percheron Horse Co.	.....Thamesford	S. 1917	2
Papillon (imp.)	1062	2885	Per.	.....724	1905	R. B. Moulton	.....Tillsonburg	S. 1914	1
Marshal Haig	18827	4577	Clyde.	.....5332	1915	J. W. Sanders	.....Tillsonburg (R.R. 5)	S. 1917	1*
Romadore	3512	3659	Per.	.....4036	1912	Thomas Downey	.....Woodstock	F. 1916	1*
Ordna Wilkes	.....	3856	Grade	.....4405	1902	Benjamin Hobson	.....Woodstock	S. 1915	3
Cairnton Thyme (imp.)	9932	1283	Clyde.	.....2143	1907	J. W. Innes	.....Woodstock	F. 1914	1
Dandy Mac	16522	4706	Clyde.	.....5190	1914	J. W. Innes	.....Woodstock	F. 1916	1*
Craigie Buchlyvie	12615	3294	Clyde.	.....451	1909	S. W. Jackson	.....Woodstock	S. 1916	1
Lodi (imp.)	4015	3211	Per.	.....3718	1911	G. H. Raper	.....Woodstock	F. 1916	1*

PEEL COUNTY.

Lumley's Best	1003	2421	Shire	.....2898	1910	R. B. Coulter	.....Alton	S. 1917	1
Warwick Model (imp.)	304	2773	Hack.	.....2407	1902	Errol McArthur	.....Alton	S. 1913	1
Stately City Boy	14477	1893	Clyde.	.....2640	1910	James Morrison	.....Alton	S. 1917	1
Eastwood Todd	2034	4633	St. Br.	.....5045	1907	T. D. Elliott	.....Bolton	F. 1917	A1
High Honor (imp.)	15178	3154	Clyde.	.....3683	1908	T. D. Elliott	.....Bolton	F. 1916	1
Irade (imp.)	1641	1090	Per.	.....146	1908	T. D. Elliott	.....Bolton	F. 1917	A1
Kamichi (imp.)	3065	2145	Per.	.....2673	1910	T. D. Elliott	.....Bolton	F. 1917	2
Leicester (imp.)	3921	3448	Per.	.....3816	1911	T. D. Elliott	.....Bolton	F. 1916	1*
Baron Gregor (imp.)	14051	1611	Clyde.	.....2481	1910	Goodfellow Brothers	.....Bolton	F. 1917	A1
Baron's Hope (imp.)	14052	1613	Clyde.	.....2482	1910	Goodfellow Brothers	.....Bolton	F. 1917	1
Colonel Lumsden	16903	4752	Clyde.	.....5188	1914	Goodfellow Brothers	.....Bolton	F. 1916	1*
Diadem (imp.)	9921	1435	Clyde.	.....2135	1904	Goodfellow Brothers	.....Bolton	F. 1914	1
Kirkcudbright Baron (imp.)	14055	1597	Clyde.	.....2480	1910	Goodfellow Brothers	.....Bolton	F. 1917	A1
Sandy MacNab	14272	2980	Clyde.	.....3526	1912	Robert H. Thomas	.....Bolton	F. 1916	1*
Gachill (imp.)	2276	2863	Per.	.....505	1906	John Andrews	.....Brampton	F. 1914	1
Earl Scott (imp. in dam)	20028	5012	Clyde.	.....5540	1913	Guy Bell	.....Brampton (R.R. 2)	F. 1917	1
Milton's Last (imp.)	12487	214	Clyde.	.....1198	1908	Guy Bell & W. Findley	.....Brampton (R.R. 2)	F. 1917	1
Prince Hohenlohe	127	860	Thor.	.....1656	1904	James Bovaird	.....Brampton	S. 1915	1
Rosturtium	512	4304	Thor.	.....4812	1910	James Bovaird	.....Brampton	F. 1917	A1
Ictere (imp.)	1610	776	Per.	.....1512	1908	E. Chapman	.....Brampton	F. 1916	1
Hugo Brunstane	17614	5172	Clyde.	.....5723	1915	W. D. Dolson	.....Brampton (R.R. 3)	S. 1918	1

Muir Hall	1725	4397	St. Br.	4863	1911	F. Hutchinson & R. Robson	Brampton	F. 1917	A1
Gateside Favourite (imp.)	15226	3153	Clyde.	3682	1912	Nix & Nixon	Brampton	S. 1917	1*
The Tester	12127	2134	Clyde.	1102	1907	H. M. Robinson	Brampton	F. 1914	1
Spartan (imp.)	509	1127	Hack.	1263	1905	James Tilt	Brampton	F. 1917	A1
Oro Leonard	949	1426	St. Br.	1821	1909	John Carr	Caledon East	F. 1916	1
Pride of Albion (imp.)	14056	3014	Clyde.	3554	1911	Ronald Crawford	Caledon East	F. 1916	1*
Kiosque (imp.)	4010	3885	Per.	3294	1910	Don. McLaren & Wm. Brow	Caledon	S. 1917	1
Lumley Boy	1002	2425	Shire	3089	1909	Wesley Speers	Caledon	F. 1916	1
Gartly Favourite	15284	3708	Clyde.	3978	1911	William G. Bailey	Campbell's Cross	F. 1916	1*
Royal Graham	20263	5091	Clyde.	5587	1915	William G. Bailey	Campbell's Cross	S. 1918	1
Dan MacNab	14354	2995	Clyde.	3527	1912	Robert Clarkson	Inglewood	F. 1916	1*
Thom's Pride (imp.)	12642	1326	Clyde.	1861	1909	James Graham	Inglewood	F. 1916	1
Centeur (imp.)	481	4300	Fr. Co.	772	1902	Albert Hewson	Malton	S. 1916	1
Prince of Greenhall (imp.)	11684	570	Clyde.	506	1908	Albert Hewson	Malton	F. 1916	1
Isole (imp.)	2271	900	Per.	1594	1908	A. E. Wedgewood	Malton	F. 1916	1
Client (imp.)	18363	4753	Clyde.	5197	1914	Nelson Hewson	Mono Road	F. 1916	1*
Emulator (imp.)	4502	2047	Clyde.	1881	1903	Little Brothers	Mono Road	F. 1914	1
Sir Gilbert 2nd	14505	2048	Clyde.	1882	1910	Little Brothers	Mono Road	F. 1916	1*
Right Forward	....	5173	Grade	5744	1913	J. L. Clark	Norval Station	S. 1918	3
Master Hillcrest	17869	5011	Clyde.	5532	1915	John Pendergast	Mono Road (R.R. 2)	F. 1917	1
Better Baron	....	5174	Grade	5747	1915	T. L. Clark	Norval Station	S. 1918	3
Dan MacNab	12950	2926	Clyde.	3497	1911	Robert Boyce	Palgrave	F. 1916	1*
Justice	....	4228	Grade	4700	1912	J. L. Clark	Norval Station	S. 1918	3
Gay Ronald	15342	4218	Clyde.	4368	1913	James Patterson	Summerville	F. 1916	1*
The Moose	1834	4709	St. Br.	5177	1914	Lewis A. Teeter	Terra Cotta	F. 1916	1*

PERTH COUNTY.

Mount Brino	....	3195	Grade	3706	1898	R. T. Carson	Atwood	F. 1914	3
Tom Nabat	208	2482	Thor.	3176	1905	William Galbraith	Atwood	F. 1914	1
Knockinlaw Revolt (imp.)	15482	2958	Clyde.	3489	1911	John Gray	Atwood	F. 1916	1*
Scotland's Hope (imp.)	7400	1277	Clyde.	2060	1903	John Gray	Atwood	S. 1915	1
Cumberland Scott (imp.)	13979	2892	Clyde.	3183	1911	Robert Burchill	Dublin	F. 1917	1
Punch of Glamis	17888	4806	Clyde.	5118	1914	J. C. Dill	Gadshill	S. 1917	1*
Integrity (imp.)	11864	2218	Clyde.	2949	1909	B. Bender	Gowanstown	F. 1916	1
J. G. Sphinx	2647	5164	St. Br.	5659	1913	Thos. Moore	Gowanstown (R.R. 1)	S. 1918	1
Missouri Bars	2173	5016	St. Br.	5498	1914	W. J. Moore	Gowanstown	F. 1917	2
Prince of Brougham (imp.)	16339	3871	Clyde.	4255	1911	D. W. & J. E. Walters & J. Snider	Gowanstown	F. 1916	1*
Mercedes Yet	12257	1668	Clyde.	2501	1907	George Duffield	Granton	S. 1915	2

*Horse requires inspection.

PERTH COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Randolph	20184	5163	Clyde.	5658	1915	Thos. A. Powell	Kirkton	S. 1918	1
Royal Dale (imp.)	14136	1470	Clyde.	2352	1910	John Collins	Listowel	F. 1916	1*
Junot (imp.)	3508	3358	Per.	3824	1909	W. C. Kidd, Listowel, Ltd.	Listowel	F. 1916	1
Mitre Bearer	709	2483	St. Br.	3175	1904	John A. McIntyre	Listowel	F. 1914	1
Hesops (imp.)	1592	3568	Per.	614	1907	John McKeaver	Listowel	S. 1915	1
King Charles	5537	5133	Per.	5285	1914	Allan Weber	Listowel	S. 1917	1*
Baron Rozelle	11554	3257	Clyde.	3742	1910	Arthur Maynard	Millbank	S. 1917	2
The Raider	1541	5057	St. Br.	5560	1912	W. H. Grosch	Milverton	S. 1918	1
Widower Peter	1791	3340	St. Br.	3809	1910	W. H. Grosch	Milverton	F. 1916	1*
Royal Ronald	12086	1368	Clyde.	2334	1907	Jas. E. Brooks	Mitchell	F. 1914	1
Toddy Direct	.....	480	Grade	737	1906	Samuel Collins	Mitchell	F. 1914	3
King Norman (imp.)	17898	4480	Clyde.	4918	1909	Hugh Colquhoun	Mitchell	F. 1917	A1
Free Mason (imp.)	7847	841	Clyde.	1727	1905	William Colquhoun	Mitchell	F. 1914	1
Riverbank (imp.)	17954	4570	Clyde.	5034	1911	William Colquhoun	Mitchell	F. 1917	A1
British Hero	20573	5167	Clyde.	5670	1912	William Colquhoun	Mitchell	S. 1918	1
Scottish Mains (imp.)	11587	2077	Clyde.	2757	1908	Frederick Eisler	Mitchell	F. 1917	A1
Craigie Baronet (imp.)	17599	4392	Clyde.	4846	1912	Moses Forsyth	Mitchell	F. 1917	A1
Dothan	60432	3773	St. Br.	4069	1912	Harvey Hannon	Mitchell	F. 1916	1*
Official	1751	4616	St. Br.	5061	1900	Henry James	Mitchell	S. 1916	1
Sololand	2302	4918	St. Br.	5428	1911	A. E. Larkworthy	Mitchell	S. 1917	1*
King Kay	13029	529	Clyde.	400	1909	John Murray	Mitchell	F. 1916	1
Lord Hiawatha	14433	3770	Clyde.	4071	1912	John Murray	Mitchell	F. 1916	1*
Faraway Blend (imp.)	9006	1098	Clyde	1650	1904	John E. Stacey	Mitchell	F. 1914	1
East Huron Prince	17982	4129	Clyde.	3966	1909	George Wolfe	Mitchell	F. 1916	1
Duke of Wellington	7610	2056	Clyde.	2228	1905	John C. Paterson	New Hamburg	F. 1914	2
Prince of Palmerston	14925	2549	Clyde.	3234	1910	Asel Ackerman	Palmerston	F. 1916	1*
Hazelwood	820	4701	Hack.	5135	1914	John Knechtel	Rostock	F. 1916	1*
Captain Murray	11746	2503	Clyde.	3191	1908	Theodore Riehl	Rostock	S. 1916	1
Involucere (imp.)	2145	354	Per.	350	1908	George Burnside	St. Mary's	S. 1917	1
Broomdale (imp.)	12150	2401	Clyde.	2552	1904	John Fitzsimons	St. Mary's	F. 1914	1
Gartly Forever (imp.)	8412	490	Clyde.	1197	1906	W. L. Mossip	St. Mary's	F. 1917	A1
Pacific (imp.)	13173	565	Clyde.	277	1904	William Mossip	St. Mary's	F. 1917	A1
Teddy Bars	1464	3507	St. Br.	3744	1905	W. L. Mossip	St. Mary's	F. 1914	1
Quicksilver (imp.)	15177	4088	Clyde.	4358	1907	James Muir	St. Mary's	S. 1915	1
King George	.....	5055	Grade	4074	1910	Geo. H. Norris	St. Mary's	S. 1918	3
Major Muir (imp.)	12559	2714	Clyde.	1363	1909	William Rae, Jr.	St. Mary's	S. 1917	1
Linfield Oro	.....	2580	Grade	3166	1910	P. S. Riddell	St. Mary's	F. 1916	3*

Duke of Avon Brae	13919	1977	Clyde.	.....2740	1910	Alexander Thompson	St. Mary's	F. 1916	1*
Sir Edmund (imp.)	9372	1524	Clyde.	.....2066	1899	D. F. Thompson	St. Mary's	F. 1914	2
Caton (imp.)	1064	1089	Per.	.....351	1905	Charles Keast	Science Hill	F. 1914	1
Royal Brino	1332	2630	St. Br.	.....2857	1901	Robert Ackersville	Sebringville	S. 1914	1
Bresilien .....	.....	2190	Grade	.....2825	1901	Thos. M. Kelly	Sebringville	S. 1914	3
Conquering Baron (imp.)	10778	2365	Grade	.....2653	1904	William J. Malloy	Sebringville	F. 1914	1
Sturdy Marcellus	17910	5056	Clyde.	.....5609	1915	J. M. McCallum	Shakespeare	S. 1918	1
Ken Favourite (imp.)	16472	3916	Clyde.	.....4361	1911	H. Reidt	Shakespeare	F. 1916	1*
Springfield 2nd	555	3310	Thor.	.....3297	1903	Henry Reidt	Shakespeare	S. 1915	1
Lord Malcolm (imp.)	15194	3125	Clyde.	.....3665	1913	Thos. Colquhoun	Staffa	F. 1917	A1
Makwira (imp.)	15279	3267	Clyde.	.....3754	1908	John Livingstone	Staffa	S. 1916	1
Albert McKinney	1730	3817	St. Br.	.....4304	1912	J. P. Aitcheson	Stratford	S. 1917	1*
Locksley (imp.)	15239	3146	Clyde.	.....3612	1911	Austin Dingman	Stratford	F. 1916	1*
Alladin (imp.)	13975	2426	Clyde.	.....2683	1911	Henry Metz	Stratford	S. 1917	1*
Prince of St. Paul's	10520	2427	Clyde.	.....2674	1908	Henry Metz	Stratford	S. 1915	1
Macduff	13461	3537	Clyde.	.....3940	1911	James McGillawee	Stratford	F. 1916	1*
Prince Victor (imp.)	5785	1620	Clyde.	.....1771	1902	Fred. Riehl	Stratford (R.R. 5)	F. 1914	1
John Bingen	1835	5168	St. Br.	.....5680	1915	John M. Wilhelm	Stratford (R.R. 1)	S. 1918	2
Karrare (imp.)	3071	1476	Per.	.....2360	1910	Herold & Ratz	Tavistock	F. 1916	A1*
Prince of Armadale	9919	541	Clyde.	.....1542	1907	Bannerman Brothers	West Monkton	F. 1914	1
Atwood Boy	14441	3818	Clyde.	.....4347	1912	Z. E. Gill	West Monkton	F. 1916	1*
Baron Galloway (imp.)	8482	1753	Clyde.	.....2017	1904	Henry Brothers	West Monkton	F. 1914	1
Lord Roberts .....	.....	3427	Grade	.....3882	1898	John White	West Monkton	S. 1915	3

PETERBORO' COUNTY.

Gordon Montrave II .....	.....	3162	Grade	.....3677	1908	Wm. E. Boulton	Burleigh Falls	F. 1916	3
McEwan's Pride	11622	3349	Clyde.	.....3818	1910	Marquis L. Post	Hastings	F. 1916	1*
Haldimand's Pride	5900	3056	Clyde.	.....1790	1904	Cecil Radley	Hastings	F. 1914	1
Lord Lionel 2nd	5400	546	Clyde.	.....811	1904	C. L. Coon	Havelock	F. 1912	1
Inaltere 2nd .....	.....	4639	Grade	.....5080	1914	Fred. G. Varty	Havelock	F. 1917	3
Drumbeg Chieftain (imp.)	12622	324	Clyde.	.....180	1909	John Lonergan	Indian River	F. 1916	1
Inaltere (imp.)	2144	151	Per.	.....774	1908	Thos. J. McConnell	Indian River	F. 1916	1
Prince of Wales of Manchester..	4620	1698	Clyde.	.....179	1902	Alexander Nesbitt & Son	Indian River	F. 1912	2
Paddy B.	1958	1430	Per.	.....2028	1901	Wm. Kempt	Keene	F. 1914	1
Christopher North (imp.) .....	.....	5112	Grade	.....5618	1903	Herbert J. Miller	Keene	S. 1918	3
Coveney Marmion	329	430	Hack.	.....799	1903	Herbert J. Miller	Keene	F. 1917	A1
Black Diamond .....	.....	3320	Grade	.....3709	1902	John Condon	Lakefield (R.R. 4)	F. 1914	3
Duke of Teck	18975	5036	Clyde.	.....5572	1913	Stephen Harrison	Lakefield	S. 1918	1
Sir Ben (imp.)	5408	2152	Clyde.	.....2859	1901	J. Elmhirst & W. Renwick	Lang	F. 1914	1

*Horse requires inspection.

PETERBORO' COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Sir Everard of Birdsall	19558	5208	Clyde.	5695	1916	J. Elmhirst & W. Renwick	Lang	S. 1918	1
City Pointer		3682	Grade	4217	1911	Fife Brothers	Lang	F. 1916	3*
Baron MacQueen	6624	1907	Clyde.	2309	1905	Wellington Burgess	Norwood	S. 1915	1
John Bright 3rd	17942	5039	Clyde.	5614	1915	W. H. R. Baptie	Peterboro (R.R. 5)	S. 1918	1
Lord Erskine		946	Grade	1707	1910	Bowles Brothers	Peterboro	F. 1916	3*
Journalier (imp.)	2330	331	Per.	219	1909	Frank H. Burke	Peterboro	S. 1917	1
Geulin (imp.)	932	3177	Per.	250	1906	Jas. Collins	Peterboro	S. 1915	1
Baron Murray (imp.)	13821	1489	Clyde.	1146	1910	W. J. Cox	Peterboro	S. 1917	1
Gartly Challenger (imp.)	5405	1424	Clyde.	1749	1902	Lewis & Clarence Ferguson	Peterboro	S. 1915	1
Baron's Fortune	11657	2058	Clyde.	2289	1910	W. J. Grant	Peterboro	F. 1916	1*
Herklan		2015	Grade	2514	1904	W. G. Howden	Peterboro	S. 1915	3
Marquis	3640	2552	Per.	3185	1910	James Killen	Peterboro	F. 1916	1*
Inceste (imp.)	1609	1405	Per.	12	1908	R. H. Nesbitt	Peterboro	F. 1916	2
Fernhall	2315	3900	St. Br.	4410	1909	F. L. Robinson	Peterboro	S. 1917	2
Lorin 2nd	4347	4354	Per.	4825	1913	W. A. Roseborough	Peterboro	F. 1917	1
Village Swain (imp.)	15167	2883	Clyde.	3446	1912	J. Wason & Clayton Hanbidge	Peterboro	S. 1917	1*
Prince Boy		2523	Grade	3179	1905	Meldrum Graham	Silver Lake	S. 1914	3
Rob Roy		1564	Grade	2364	1909	E. Carveth & P. H. Lloyd	Warsaw	F. 1916	3

PRESCOTT COUNTY.

Territorial (imp.)	401	1994	Per.	496	1904	Laniel & Chevrier	Alfred	F. 1912	1
Dominion Day	2671	4878	St. Br.	5282	1914	L. H. Quesnel	Alfred	S. 1917	1*
Barney		4691	Grade	5117	1914	Robert A. Hanna	E. Hawkesbury	F. 1916	3*
Goliath (imp.)	405	2794	Per.	270	1906	Robert A. Hanna	E. Hawkesbury	F. 1914	1
Briton		1671	Grade	2597	1910	James Spratt	Hawkesbury	F. 1916	3*
The Sensation (imp.)	11681	706	Clyde.	1080	1908	J. B. C. Daoust	Lefalvre	F. 1916	1
Meadowbank Billy		3156	Grade	3441	1905	Onesime Menard	Lefalvre	S. 1914	3
Black Prince		1973	Grade	2817	1910	Felix Vinette	Lefalvre	S. 1918	3
Brigand	739	2516	Fr. Can.	2402	1902	James A. Harrigan	Lemieux	S. 1913	1
John Lucifer		4963	Grade	4456	1910	A. B. Campbell	Plantagenet (R.R. 1)	S. 1917	3
Buenos Ayres		2647	Grade	1181	1901	Hugh Kelso	Prescott	F. 1912	3
Mikado (imp.)	12926	1322	Clyde.	1866	1908	G. A. Ryan	Riceville	S. 1915	1
Dick		2476	Grade	3181	1906	Ovila Campeau	St. Amour	F. 1914	3
Canadian Beauty		270	Grade	934	1905	O. St. Amour & John McCuaig	St. Amour	F. 1914	3

Cesar (imp.)	3710	2332	Per.	.....1327	1904	Victor Belaire	.....Ste. Anne de Prescott.	F.	1914	1
Blaiket Blend	15197	3093	Clyde.	....3613	1910	Pierre Vachon	.....Ste. Anne de Prescott.	F.	1916	1*
Lord Allan	4497	2399	Clyde.	....3112	1904	John D. McCallum	.....Vankleek Hill	F.	1914	1
Joliet General	1016	4065	Shire	....4580	1911	John A. McCuaig	.....Vankleek Hill	F.	1916	2*
Robert Erskine (imp.)	16183	3462	Clyde.	....3906	1911	Joseph St. Denis	.....Vankleek Hill	F.	1916	1*
Bruno	...	4540	Grade	....5018	1913	Edward Viau	.....Wendover	S.	1918	3

PRINCE EDWARD COUNTY.

Don Pedro	...	285	Grade	....1333	1909	Sylvester Pine	.....Allisonville	S.	1917	3
Golden Prince	...	249	Grade	....578	1906	Washington Pine	.....Allisonville	F.	1914	3
Highlander Chief	15758	4578	Clyde.	....4989	1913	M. E. Wood	.....Ameliasburg	F.	1917	1
Glenco	5535	4754	Per.	....5204	1914	M. Grant Thompson	.....Bloomfield	F.	1916	1*
Jouan (imp.)	2139	653	Per.	....780	1909	Grant Thompson	.....Bloomfield	F.	1916	1
Tomich's Heir (imp.)	6792	827	Clyde.	....1913	1905	Horace Alyea	.....Consecon	S.	1913	1
Jasper	4306	4277	Per.	....4714	1913	Richard Bedford	.....Consecon	F.	1916	1*
Prince Hall	...	3470	Grade	....3893	1910	Isaac Reilly	.....Hillier	F.	1916	3*
Domino (imp.)	1065	99	Per.	....812	1905	G. Edward Boulter	.....Picton	F.	1914	1
Kroupier (imp.)	3037	431	Per.	....805	1910	G. Edward Boulter	.....Picton	F.	1916	1*
Roylstreat Vidocque	...	133	Grade	....568	1907	Thomas Clapp	.....Picton	F.	1914	3
Won't Dance	1668	3796	St. Br.	....4355	1909	Healy & Herrington	.....Picton	F.	1916	1
Grand Opera	...	1987	Grade	....391	1905	James Hudgins	.....Picton	S.	1915	3
Canada's Pride, Jr.	...	247	Grade	....571	1907	E. Pecling & Reuben Hill	.....Picton	S.	1915	3
Catalan	...	2540	Grade	....1796	1902	William Potter	.....Picton	F.	1914	3
President De Lion	811	635	St. Br.	....573	1901	James W. Bircckman	.....Rednersville	F.	1912	2
Blitz, Jr.	...	590	Grade	....414	1900	R. C. Hubbs	.....Rossmore	F.	1912	3
Acme Yet	10381	554	Clyde.	....565	1910	George Robinson	.....Rossmore	S.	1917	1
Koursier (imp.)	4007	4511	Per.	....3988	1910	J. H. Davidson	.....Wellington	F.	1916	1*

RENFREW COUNTY.

Leduc	...	4313	Grade	....4900	1900	John Beatty	.....Admaston Station	S.	1916	3
Grand Opera	2388	4825	St. Br.	....1206	1908	John Brennan	.....Arnprior	F.	1916	1
Gaudette	4584	4728	Grade	....5210	1914	Duncan Cameron	.....Arnprior	F.	1916	1*
Roy	...	3428	Grade	....3884	1910	Timothy Carron	.....Arnprior	F.	1916	3*
Captain Larabie	1510	3636	St. Br.	....3737	1904	J. H. Moorhouse	.....Arnprior	F.	1914	1
Young Jonas	...	5211	Grade	....5731	1916	Daniel Duggan	.....Ashdad (R.R. 1)	S.	1918	3
Gaiac (imp.)	1557	697	Per.	....931	1906	A. E. White	.....Barry's Bay	F.	1914	1

*Horse requires inspection.

RENFREW COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol- ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Vivacity 2nd	13015	436	Clyde.	839	1911	A. E. White	Barry's Bay	F. 1916	1*
Sandy Macaron	...	2952	Grade	3502	1909	William Fletcher	Beachburg	F. 1916	3
Hedley's Choice	13052	3947	Clyde.	4315	1911	Alex. Hawthorne	Beachburg	F. 1916	1*
Royal Loma	15291	3666	Clyde.	4126	1912	Gordon McClelland	Beachburg	F. 1916	1*
Golden Thistle	10253	19	Clyde.	1341	1909	Albert Watchorn	Beachburg	F. 1916	1
Baron Helington	...	4934	Grade	5466	1915	Peter McLean	Braeside	S. 1917	3*
King of The Porter	...	3617	Grade	132	1908	J. A. Craig	Calabogie	F. 1916	3
Oro Tariff	...	1223	Grade	1990	1906	Hugh Patterson	Cobden	F. 1914	3
Great Onward	1400	3824	St. Br.	4364	1908	W. D. Tuffy	Cobden	S. 1915	1
Jimmie Marquis	10863	3799	Clyde.	4171	1909	Alex. McDermott	Cobden	S. 1918	2
Verona Leader	866	1267	Shire	2032	1909	P. P. Enright	Douglas	F. 1916	1
Jasper (imp.)	2327	3620	Per.	3046	1909	James Martin	Eganville (R.R. 1)	F. 1916	1
Dock	...	4209	Grade	4693	1913	A. N. Neitzel	Eganville	F. 1916	3*
Imperial George	14406	511	Clyde.	1436	1911	James L. Miller	Glasgow	F. 1916	1*
Prince	...	3451	Grade	3896	1912	William Schruder	Golden Lake	S. 1917	3*
Patrick	...	4931	Grade	5458	1915	Gilbert Godin	Griffith	S. 1917	3*
Earl Park (imp.)	13736	2987	Clyde	1227	1910	Foster Brothers	Hyndford (R.R. 1)	S. 1918	1
Stonewall	13397	3295	Clyde.	3778	1909	Foster Brothers	Hyndford	S. 1918	1
Talbot of Bellback	12228	3348	Clyde.	3697	1910	Foster Brothers	Hyndford	S. 1918	1
Jess Willard	810	4729	Hack.	5250	1915	William T. James	Hyndford	S. 1917	1*
Racipault 3rd	...	4778	Grade	5120	1913	Albert Balafskie	Killaloe Station	S. 1917	3*
Prince	...	4777	Grade	5108	1914	Peter Cybulski	Killaloe Station	S. 1917	3*
Hudson	1519	1624	Per.	101	1907	Thomas Dunnigan	Killaloe	S. 1915	1
Champion	...	1878	Grade	2441	1908	William Noack	Killaloe Station	S. 1915	3
Remeau	...	4370	Grade	4916	1909	John Okum	Killaloe Station	S. 1916	3
Oceanic (imp.)	16672	4051	Clyde.	4558	1910	William Verch	Killaloe Sta. (R.R. 1)	F. 1916	1*
Monarch	...	5102	Grade	5649	1914	John Gallagher	Letterkenny	S. 1918	3
Baron's Kid	9742	5131	Clyde	5645	1908	R. H. Brown	Pembroke	S. 1918	2
Mentar 2nd	...	4444	Grade	4954	1912	James H. Coffee	Pembroke	F. 1917	3
Ready Money II	...	3071	Grade	3613	1911	Norman Layman	Pembroke	S. 1918	3
Joe Berry	076	4046	St. Br.	4159	1913	James O'Kelly	Pembroke	F. 1916	1*
King Todd	1300	4291	St. Br.	3041	1907	W. Arthur Smyth	Pembroke	S. 1916	1
Joural (imp.)	2137	520	Per.	1750	1909	Robert Strutt	Pembroke	F. 1917	1
Perry	...	4302	Grade	4744	1913	Luke Vondette, Jr.	Pembroke	S. 1918	3
Royal Elegance	503	542	Hack.	1550	1907	August F. Woermke	Pembroke	F. 1914	1
Wurtemburg	2215	4791	St. Br.	5320	1911	Allan Carswell	Renfrew	S. 1917	1*
The Young Haslize	...	4789	Grade	5312	1914	Maurice Culhane	Renfrew	S. 1917	3*

Jonas (imp.)	2996	714	Per.	.....1277	1909	Robert Graham	.....Renfrew	F. 1916	1
McKenzie	42	393	St. Br.	.... 580	1909	Thos. F. Barnet	.....Renfrew	F. 1916	1
Royal Cadet (imp.)	13844	1490	Clyde.	....1247	1909	Robert Graham	.....Renfrew	F. 1916	1
Young Jones	....	4788	Grade	....5308	1914	August Hoffman	.....Renfrew	S. 1917	3*
Hasli (imp.)	1560	452	Per.	....1096	1907	John Mayhew & Company	.....Renfrew	F. 1914	1
Orkindee	1656	4319	St. Br.	....4929	1914	M. J. O'Brien	.....Renfrew	S. 1918	1
The Captain	11518	366	Clyde.	.... 446	1910	M. J. O'Brien	.....Renfrew	S. 1918	1
Reciprocity	....	2359	Grade	....3081	1905	Thomas J. Whelan	.....Renfrew	S. 1915	3
Prince	....	2459	Grade	....3160	1910	A. C. Brash	.....Woito	F. 1916	3*

RUSSELL COUNTY.

Rosebank's Fashion	9637	3142	Clyde.	....3564	1909	W. E. Lowe	.....Bear Brook	F. 1916	1
Milo 3rd (imp.)	....	74	Grade	.... 933	1899	Evangeliste Potvin	.....Bourget	F. 1912	3
Forgie Lad (imp.)	....	1965	Grade	....1073	1907	Joseph Boudrias	.....Crysler	F. 1914	3
Major	....	4904	Grade	....5434	1914	Gedeon Burelle	.....Crysler	S. 1917	3*
Hableur (imp.)	2241	1827	Per.	....1298	1907	John Fitzpatrick	.....Cumberland	F. 1914	1
Baby H.	....	4884	Grade	....5417	1911	J. M. Bordeau	.....Embrun	S. 1917	3*
Prince Ambrose, Jr.	....	4893	Grade	....5233	1913	J. V. Bourbonnais	.....Embrun (R.R. 1)	S. 1917	3*
Prince	....	4870	Grade	....5354	1905	Pierre Burelle	.....Embrun	S. 1917	3
Rodger	....	4880	Grade	....5298	1912	O. Charlesbois	.....Embrun	S. 1917	3*
Campsie	....	2864	Grade	....3389	1911	Elzeor Lamodeleine	.....Embrun	F. 1917	3
Harvest Reaper	2533	5058	St. Br.	....5590	1912	W. P. Hurdman	.....Hurdman's Bridge	S. 1918	A1
Golden Result	1204	4550	St. Br.	....4974	1904	John B. Robinson	.....Leonard	S. 1916	1
Roscol	3477	4584	Per.	....5008	1906	John B. Robinson	.....Leonard	S. 1916	1
Black Ward	....	3654	Grade	....3984	1909	Jas. S. Fader	.....Marvelville	F. 1916	3
Northern Delta	1977	4921	St. Br.	....5254	1914	Antoine Leduc	.....Orleans	S. 1917	2*
Joubert (imp.)	693	3379	Bel. Dr.	....3848	1911	Joseph Lefebvre	.....Orleans	S. 1917	1*
Corporal Charles	2528	5098	St. Br.	....5556	1909	Neil A. Campbell	.....Rockland	S. 1918	1
Casino (imp.)	257	1062	Per.	.... 831	1903	Donald Campbell	.....Russell	F. 1912	1
Koquelon (imp.)	4460	3771	Per.	....4083	1910	J. Herrington	.....Russell	F. 1916	1*
Baron Clifty (imp.)	17266	4351	Clyde.	....4813	1913	William Meharey	.....Russell	F. 1917	A1
Golden Crown (imp.)	10656	1463	Clyde.	....2127	1905	William Meharey	.....Russell	F. 1917	A1
Highland James	6709	1617	Clyde.	....2374	1905	Samuel Merkley	.....Russell	S. 1913	1
The Utterance	2345	4917	St. Br.	....5416	1915	S. H. Merkley	.....Russell	S. 1917	1*
Lord Howick (imp.)	9692	1303	Clyde.	....1949	1907	Joseph Ouimet	.....St. Albert	F. 1914	1
Spotted Beauty	....	4553	Grade	....5003	1912	Narcisse Rivard	.....St. Onge	S. 1918	3
Gold Heels	1607	3825	St. Br.	....4416	1913	Fred. W. Melvin	.....Vars	F. 1916	1*

*Horse requires inspection.

SIMCOE COUNTY.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert
King Stalwart	.....	887	Grade	.....1699	1909	C. W. Srigley	.....Allandale	F. 1916	3
Baron Knot	13466	1129	Clyde.	.....1530	1908	Jervis Kearnan	.....Angus	F. 1916	1
King Shattan (imp.)	8815	487	Clyde.	.....1162	1903	George Coffey	.....Ballycroy	F. 1916	1
Black Peer (imp.)	13806	1822	Clyde.	.....942	1910	Roy and Milton Legett	.....Ballycroy	F. 1916	1*
Lord Thomas (imp.)	11487	378	Clyde.	.....539	1908	Percy Semple	.....Beeton	F. 1916	1
Alcyonium Boy	1455	2214	St. Br.	.....924	1893	John Sutherland	.....Bond Head	F. 1912	1
Regal Direct	1370	2981	St. Br.	.....3486	1899	John Sutherland	.....Bond Head	F. 1914	1
Celtic Baron MacQueen	15918	4581	Clyde.	.....4972	1913	W. J. Faris	.....Bradford	S. 1918	1
Duke of Montrose (imp.)	9561	1374	Clyde.	.....2302	1907	Frank Saint	.....Bradford	F. 1914	1
Royal Baron	4722	3870	Clyde	.....4250	1900	Frank Saint	.....Bradford	F. 1914	1
Touchstone (imp.)	13846	1384	Clyde	.....2304	1910	Frank Saint	.....Bradford	F. 1916	1*
Prince Charming	.....	2011	Grade	.....1572	1903	Charles Morrow	.....Colgan	S. 1915	3
Manor Brino	.....	3789	Grade	.....2265	1912	W. J. Little	.....Collingwood	F. 1916	3*
George Rooker	.....	3365	Grade	.....3829	1910	A. C. McMillan	.....Collingwood	S. 1917	3*
C. The Limit	1099	2865	St. Br.	.....3326	1904	Leadley & Jamieson	.....Cookstown & Thornton.	F. 1914	2
Pearl Finder Junior	18946	4858	Clyde.	.....5391	1914	Henry Leadley	.....Cookstown	F. 1916	1*
Paddy Todd	.....	4217	Grade	.....3158	1910	R. H. Leadley	.....Cookstown	F. 1916	3*
Pearl Finder (imp.)	4557	1008	Clyde.	.....716	1902	R. H. Leadley	.....Cookstown	F. 1914	1
Lawford Forest King	881	1947	Shire	.....159	1908	J. H. Readman	.....Cookstown	S. 1917	1
Arcadius	.....	1545	Grade	.....2234	1908	Wm. Sheffield & John Brown	.....Craighurst	S. 1916	3
Captain Scott	.....	2577	Grade	.....3242	1910	John & Edmund Moran	.....Craighurst	F. 1917	3
Karton (imp.)	3070	2312	Per.	.....2840	1910	Andrew Bowman	.....Craigvale	F. 1916	1*
Gartly Recruit	17361	4820	Clyde.	.....5400	1915	Isaac L. Aikins	.....Creemore	S. 1917	1*
Lord Stanley	9424	886	Clyde.	.....1689	1908	Geo. W. Taylor	.....Creemore	F. 1916	1
Oro Vero	1605	4852	St. Br.	.....4955	1914	Wm. Leach	.....Duntroon	S. 1917	1*
Cacus Star	1997	4562	St. Br.	.....5021	1907	J. W. Manarey	.....Duntroon	S. 1916	1
Celtic Laird (imp.)	5413	1337	Clyde.	.....1674	1903	John W. Manarey	.....Duntroon	F. 1914	1
Star of Roses (imp.)	3614	1101	Clyde.	.....1673	1899	John W. Manarey	.....Duntroon	F. 1914	1
The Miracle	.....	2966	Grade	.....3539	1910	John W. Manarey	.....Duntroon	F. 1916	3*
Solway King (imp.)	11233	1901	Clyde.	.....2465	1908	Hazel Edwards	.....Elmvale	S. 1918	1
Duc De Maxwellton	4248	4987	Per.	.....5290	1913	Hazel Edwards	.....Elmvale	S. 1917	1*
Archie Gay	16718	4469	Clyde.	.....4763	1913	Joseph H. Edwards	.....Elmvale	F. 1917	1
Timvale	2047	4557	St. Br.	.....4270	1912	Joseph H. Edwards	.....Elmvale	S. 1917	1*
Upperton Prince (imp.)	11484	794	Clyde.	.....1791	1906	Charles Grigg	.....Elmvale	F. 1914	1
Arcadius (imp.)	3638	2140	Per.	.....2148	1903	Robert J. Hisey	.....Elmvale	F. 1914	1
James Moncreiffe	16815	4602	Clyde.	.....4362	1912	Charles Kidd	.....Elmvale	S. 1917	1*
Buchlyvie Mac	18386	5063	Clyde,	.....5542	1915	W. L. Ritchie	.....Elmvale	F. 1917	1*

Jurat (imp.)	.....	1958	Grade	.....2545	1909	A. R. Murphy	.....Everett (R.R. 3)	.....	S. 1917	3
Baron Darnley	.....	5095	Clyde.	.....5607	1915	A. R. Murphy	.....Everett	.....	S. 1918	1
Lord Kinnoul (imp.)	.....	1616	Clyde.	.....1388	1907	A. R. Murphy	.....Everett	.....	F. 1914	1
Montrave Richards	.....	4422	Clyde.	.....4751	1914	James Rusk	.....Everett (R.R. 1)	.....	F. 1916	1*
Prince Charles	.....	4992	Grade	.....5483	1915	John Harper	.....Falkenburg	.....	S. 1917	3*
Simcoe King	.....	4831	Clyde.	.....5297	1915	Fred. Richardson	.....Fergusonvale	.....	S. 1917	1*
Baron Gartly, Jr.	.....	1359	Grade	.....2665	1908	E. F. Quick	.....Fox Mead	.....	F. 1916	3
Pianiste (imp.)	.....	1821	Per.	.....1155	1902	Thomas Blain	.....Gilford	.....	F. 1912	1
Marin (imp.)	.....	2229	Per.	.....2265	1900	A. N. Currie	.....Hawkestone	.....	F. 1914	2
Royal Tom	.....	1443	Clyde.	.....2256	1902	Fred. Arksey	.....Hillsdale	.....	F. 1914	1
Moody Deveras	.....	4912	Grade	.....4387	1912	F. W. Arksey	.....Hillsdale	.....	S. 1917	3*
King of Diamonds (imp.)	.....	217	Clyde.	.....1201	1909	Fitzgerald Brothers	.....Hillsdale	.....	F. 1916	2
Sandy Lyon Stewart	.....	2373	Grade	.....3088	1911	Alphonse Pauze	.....Lafontaine	.....	S. 1918	3
Duke of Auchgoyle	.....	5176	Clyde.	.....5653	1915	J. C. Archer	.....Lawson	.....	S. 1918	1
Joigny (imp.)	.....	93	Per.	.....695	1909	Walter Lawson	.....Lawson	.....	F. 1916	1
Jimmy Glasserton	.....	4470	Clyde.	.....4806	1913	Geo. Lovering	.....Lawson	.....	F. 1917	1
Prince Thomas	.....	1629	Clyde.	.....2426	1907	Chas. Northgraves	.....Lefroy	.....	F. 1914	1
National	.....	3651	Grade	.....386	1905	Wm. Bowman	.....Midland	.....	F. 1914	3
Jess Willard	.....	5019	Per.	.....5538	1915	Jos. Chappell	.....Minesing	.....	F. 1917	1
Pride of New Mills (imp.)	.....	1635	Clyde.	.....561	1904	John A. Lucas	.....Mitchell Square	.....	F. 1912	1
Jay (imp.)	.....	1876	Per.	.....2618	1909	Orval Brouillard	.....Moonstone	.....	F. 1916	1
Baron Rowena (imp.)	.....	596	Clyde.	.....287	1903	Robert Stephenson	.....New Lowell	.....	F. 1917	A1
Heart of Oak	.....	2887	Shire	.....3379	1911	Robert Ego	.....Orillia	.....	F. 1917	1
Manor King	.....	2974	St. Br.	.....3380	1906	Thos. Hodgson	.....Orillia	.....	S. 1914	1
Reachly Boy	.....	4320	St. Br.	.....4743	1913	Edward Lyons	.....Orillia	.....	F. 1917	1
Lenior (imp.)	.....	3714	Per.	.....4244	1911	J. M. Barnhardt	.....Oro Station	.....	F. 1916	1*
Baron Mac	.....	313	Clyde.	.....81	1909	Samuel Kissock	.....Oro Station	.....	F. 1916	1
Upperton Prince (imp.)	.....	794	Clyde.	.....1791	1906	Charles Wice	.....Painswick	.....	F. 1914	1
Prince Arundle	.....	326	Grade	.....196	1903	A. G. Chew	.....Port McNicoll	.....	F. 1912	3
Silver Birch (imp.)	.....	528	Clyde.	.....262	1905	Robert Armstrong	.....Stayner	.....	F. 1914	1
Felicity (imp.)	.....	1696	Clyde.	.....1658	1908	Neil Bell	.....Stayner	.....	S. 1915	1
Royal Wildfire (imp.)	.....	1181	Hack.	.....1522	1903	Neil Bell	.....Stayner	.....	F. 1914	2
Viscount Humphrey (imp.)	.....	3255	Clyde.	.....3721	1910	Angus Buie	.....Stayner	.....	F. 1916	1*
Ganymede III	.....	1782	Grade	.....2359	1902	Dr. Fleming	.....Stayner	.....	F. 1914	3
Arcadius (imp.)	.....	2140	Per.	.....2148	1903	Wm. Granger	.....Stayner	.....	F. 1914	1
McArley II	.....	3487	Grade	.....3917	1904	John M. Huth	.....Stayner	.....	F. 1914	3
Sandy Sylvander	.....	4803	Grade	.....5392	1911	Donald McQueen	.....Stayner	.....	S. 1917	3*
Royal Saxon	.....	4123	Hack.	.....4432	1905	James Moore	.....Stayner	.....	S. 1915	2
Lord Archie (imp.)	.....	558	Clyde.	.....144	1908	Christopher Thomson	.....Stayner	.....	F. 1917	A1
Barglass 2nd	.....	4688	Clyde.	.....5051	1914	Herbert J. Hopkins	.....Sturgeon Bay	.....	F. 1916	1*

*Horse requires inspection.

SIMCOE COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrolment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
King Grant	18747	4615	Clyde.	....4841	1913	William Sharpe	Thornton	F. 1917	1
Royal Bob .....	....	2361	Grade	....3084	1909	John Breedon	Tottenham	F. 1916	3
Intact (imp.)	2201	693	Per.	....5012	1908	James McDevitt	Tottenham	S. 1917	1
Simcoe King	15902	3414	Clyde.	....3834	1911	John Semple	Tottenham	F. 1916	1*
Gold Dust Chief	19065	5094	Clyde.	....5606	1913	Wm. McWatters	Vasey	S. 1918	1

STORMONT COUNTY.

Bladnoch's Heir	10323	751	Clyde.	....788	1907	J. W. Shaver	Avonmore	S. 1916	1
Silver Dick .....	....	4868	Grade	....5333	1913	Abner Ouderkirk	Berwick	S. 1917	3*
Royal Marquis	12063	375	Clyde.	....516	1908	W. G. & G. M. Brown	Cornwall	F. 1916	1
Count of Cornwall	4516	4468	Per.	....4739	1913	Walter Wood	Cornwall	F. 1917	2
Young Riley .....	....	1193	Grade	....837	1906	Godfrey LaFlamme	Cornwall (R.R. 2) ..	F. 1914	3
Grand Baron Wallace .....	....	5192	Grade	....5630	1916	David Wilson	Cornwall	S. 1918	3
Mogar .....	....	4624	Grade	....5062	1913	F. X. Briere	Cryslar	F. 1917	3
Gex (imp.)	406	1595	Per.	....2178	1906	Cloutier Brothers	Cryslar	S. 1916	1
Duke Junior .....	....	2809	Grade	....1690	1910	John Ferguson	Cryslar (R.R. 2) ..	F. 1916	3*
Hydrophile (imp.)	1520	58	Per.	....1121	1907	M. St. Louis	Cryslar	F. 1914	1
Joe Buston Euston .....	....	4353	Grade	....4819	1913	Edwin G. Vincent	Gallington	F. 1917	3
Flanders Chief (imp.)	11789	87	Clyde.	....690	1908	John E. Runions	Mille Roche	F. 1916	1
King David II .....	....	3018	Grade	....3533	1905	D. J. McDonald	Monkland	F. 1914	3
Kirkland Chief (imp.)	12207	4938	Clyde.	....5442	1908	Nelson McRae	Moose Creek	S. 1917	1
Lord Gregor (imp.) .....	....	1802	Grade	....2478	1908	Joseph Rozon	Moose Creek	F. 1916	3
Prince .....	....	1855	Grade	....2622	1907	A. D. Valley	Moose Creek	F. 1914	3
Rob Roy Jr. ....	....	2029	Grade	....2766	1910	J. W. Watson	Newington	F. 1916	3*
Emir King of the West .....	....	4331	Grade	....4730	1911	James P. Coughler	Northfield Station ..	S. 1918	3
Jasper (imp.)	7972	929	Clyde.	....854	1905	William McCall	Northfield Station ..	F. 1914	2
Frisky Hal	032	2975	St. Br.	....2193	1910	J. W. Connors	Wales	S. 1918	1

VICTORIA COUNTY.

Royal Gallant	19226	4956	Clyde.	....5411	1914	Dunn Brothers	Bobcaygeon	S. 1917	1*
Lord Rufus (imp.)	5047	2670	Clyde.	....3042	1902	Arthur Cosh	Bobcaygeon	S. 1915	1
Meaburn King (imp.)	8806	4132	Clyde.	....2449	1905	Verner English	Bobcaygeon	F. 1914	1

Igné (imp.)	2264	526	Per.	229	1908	James Humphries	Bobcaygeon	S.	1917	1
MacQueen's Crest	4519	2051	Clyde.	1945	1905	Noble Perrin	Cameron	F.	1914	1
Keswick Chief	.....	3739	Grade	4232	1904	Hugh Grant	Cresswell	F.	1914	3
Phil (imp.)	16366	4832	Clyde.	5309	1912	M. McPhaden	Cresswell	S.	1917	A1*
Jacob (imp.)	3754	2803	Per.	3328	1909	John L. Davis	Dongola	S.	1916	1
Lawrence Archer	2584	2754	Clyde.	224	1899	William E. Austin	Fenelon Falls	F.	1912	1
Captain Archer	.....	5113	Grade	5648	1915	Wm. R. Kelly	Fenelon Falls	S.	1918	3
Dan Finister II	.....	4396	Grade	4861	1913	James Poulson	Fenelon Falls (R.R. 1)	F.	1917	3
Golden Gloss	14444	3369	Clyde.	3803	1911	Alfred Tiers	Fenelon Falls	F.	1916	1*
The Favorite Knight	6014	4	Clyde.	1314	1903	A. J. Southern	Head Lake	F.	1914	1
Acme 2nd	11413	1526	Clyde.	2105	1910	James Gatchell	Kinmount	S.	1917	2
Sure Security	15571	4398	Clyde.	4865	1913	Thomas Black	Kirkfield (R.R. 2)	F.	1917	1
Belgrade	.....	1021	Grade	1491	1903	Howard De Geer	Kirkfield	F.	1914	3
Sterling Silver	16784	3923	Clyde.	4466	1913	Howard De Geer	Kirkfield	F.	1916	1*
Arthur's Seat (imp.)	12029	338	Clyde.	254	1908	Joseph McKenzie	Kirkfield	S.	1916	1
Dunure Heather (imp.)	12028	339	Clyde.	255	1909	Joseph McKenzie	Kirkfield	F.	1916	1
Indiana Boy	.....	1844	Grade	2554	1906	W. F. Broad	Lindsay	F.	1914	3
Fire Alarm	.....	1501	Grade	938	1905	John Brock	Lindsay	S.	1915	3
Sir Leonard (imp.)	12108	532	Clyde.	947	1908	John Brock	Lindsay	F.	1916	1
Golden Key (imp.)	9997	1570	Clyde.	390	1906	George Curtis	Lindsay	F.	1914	1
Noteworthy B.	2485	5037	St. Br.	5579	1905	George Curtis	Lindsay	S.	1918	1
Roy Brook	2443	4103	St. Br.	1207	1903	W. A. Fanning	Lindsay	S.	1915	1
Chimes Todd	1022	4939	St. Br.	4754	1910	Thomas Hodgson	Lindsay	S.	1917	1
Herman Wenger	2420	4984	St. Br.	5469	1910	Thomas Hodgson	Lindsay	S.	1917	2
Borrow Moss (imp.)	228	3539	Hack.	256	1898	Orin Parkin & Alex. Millage	Lindsay	F.	1912	1
Invincible Chattanooga	17952	4773	Clyde.	5389	1913	George Pogue	Lindsay	S.	1917	1*
Golden Bloom (imp.)	12233	3417	Clyde.	2390	1906	George H. Spencley	Lindsay	F.	1914	1
Prince of Mertoun (imp.)	9591	364	Clyde.	432	1907	Spratt & Parkins	Lindsay	F.	1914	1
Easy Fortune	11029	884	Clyde.	1693	1910	Thos. H. Waldon	Lindsay	F.	1916	1*
Prince Gartly	10284	581	Clyde.	248	1909	Thos. H. Waldon	Lindsay	F.	1916	1
Rufus Darnley	17696	4525	Clyde.	4854	1913	Jackson Brothers	Little Britain	F.	1917	1
Dan Buteman	11986	3609	Clyde.	3053	1909	Wm. G. Cockburn	Manilla	S.	1917	2
Toronto Chief Jr.	.....	3747	Grade	4227	1904	Robt. T. Edwards	Manilla	F.	1914	3
Rosebank Pacific	17476	5038	Clyde.	5585	1915	Henry Glendenning & Son	Manilla	S.	1918	1
Young Victor	.....	131	Grade	1139	1910	Fred. H. Draves	Matheson	F.	1916	3*
Jerry J.	0101	4419	St. Br.	4926	1913	William Gunn	Norland	F.	1917	1
Polignac (imp.)	3556	1161	Per.	1620	1901	William Gunn	Norland	S.	1913	1
The Golden Thistle	16035	3671	Clyde.	4145	1912	William Gunn	Norland	F.	1916	2*
Zippo	.....	1787	Grade	1562	1909	R. J. Beggs	Oakwood	S.	1917	3
Merryman	.....	562	Grade	252	1906	F. P. Coad	Oakwood	F.	1914	3
Spanish Rose	.....	5101	Grade	5647	1910	Albert Lee	Oakwood	S.	1918	3

*Horse requires inspection.

VICTORIA COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Sir Gregor (imp.)	14756	1345	Clyde.	727	1905	Samuel Fee	Omeme	F. 1914	1
Duke Royal	16694	4747	Clyde.	5231	1914	Geo. A. McQuade	Omeme	F. 1916	1*
Canada Southern		2429	Grade	3137	1906	L. Wilson	Omeme	F. 1914	3
Dewdrop	17979	4732	Clyde.	5121	1913	H. W. Johnson	Powles Corners	F. 1917	2
Belle Boy		4175	Grade	4656	1912	John Lowery	Reaboro	S. 1917	3*
Hygrade	19118	5111	Clyde.	5617	1916	Joseph Hicks	Victoria Road	S. 1918	1
Earn Wilkes		2032	Grade	2790	1906	Peter N. MacDonald	Woodville	F. 1914	3
Atlantic	17573	4712	Clyde.	5105	1914	Peter Morrison	Woodville	F. 1916	2*
Baron MacGregor 2nd	11627	833	Clyde.	1709	1910	Joseph Nugent	Woodville	F. 1916	1*

WATERLOO COUNTY.

Warwick Albert (imp.)	421	2854	Hack.	3304	1904	Wm. Robson	Ayr	F. 1914	1
Pershore		5000	Grade	2766	1900	D. R. Boshart	Baden	F. 1917	3
Gold Dust	11820	1648	Clyde.	2339	1910	J. H. Bolender	Elmira	S. 1917	1
Sphinx Messenger		3896	Grade	3981	1910	J. H. Bolender	Elmira	S. 1917	3
Stratheona		1217	Grade	2034	1910	George H. Eisenbach	Elmira	F. 1916	3*
Commodore A.	212	2466	St. Br.	2711	1909	J. W. Miller	Elmira	S. 1917	1
Royal Dragoon (imp.)	13849	3141	Clyde.	1264	1911	J. W. Miller	Elmira	F. 1916	1*
Chester Prince (imp.)	12364	1408	Clyde.	2395	1905	D. S. Ferguson	Galt	F. 1914	1
Baron Acme (imp.)	5748	2103	Clyde.	2907	1904	George B. Ford	Galt	F. 1914	1
Moncristieffe Prince	13575	2637	Clyde.	2928	1910	George B. Ford	Galt	F. 1917	1
Battle	1826	4885	St. Br.	5431	1908	Miss K. L. Wilkes	Galt	S. 1917	1
Jim Todd	160	3564	St. Br.	3953	1907	Miss K. L. Wilkes	Galt	F. 1914	1
Kentucky Todd	1533	5074	St. Br.	5571	1904	Cruickston Stock Farm	Galt	F. 1918	1
Swinburne (imp.)	15171	3066	St. Br.	3433	1909	George Forwell	Hawkesville	S. 1916	1
Lord Ivanhoe	17280	4972	Clyde.	5459	1914	John Gildner	Kitchener	S. 1917	1*
Invetere (imp.)	2367	1073	Clyde.	348	1908	Shantz & Markham	Kitchener	S. 1915	1
Mais (imp.)	6056	4761	Per.	5323	1912	T. S. Shantz & I. Markham	Kitchener	S. 1917	A1*
Knight of Fairview	14155	2473	Clyde.	2742	1910	John & Jos. Eisenmenger	Linwood	F. 1916	1*
Knight of Glamis (imp.)	4533	1979	Clyde.	1923	1902	Alfred Hewitt & Son	Linwood	S. 1913	1
Main General		3341	Grade	3810	1910	John T. Petch	Linwood	F. 1916	3*
Lord Glamis	12593	2661	Clyde.	2016	1909	John Schneider	Linwood	F. 1916	2
Andy Red Lac		4458	Grade	4921	1909	Bach & Batler	New Dundee	S. 1916	3
Ale	1753	2388	Gr. Co.	526	1905	Gideon Bock	New Dundee	F. 1914	1
Young Performer		3700	Grade	4103	1904	Robert Hyde	New Hamburg	F. 1914	3

Gold Coin	16684	3879	Clyde.	4450	1912	John C. Patterson	New	Hamburg	.....	S.	1917	1*
Scottish Baron (imp.)	4245	2779	Clyde.	2715	1901	D. W. Seyler	New	Hamburg	.....	F.	1914	1
Casino	961	1071	Per.	354	1906	Jacob Steinmann & Son	New	Hamburg	.....	F.	1914	1
Jour (imp.)	2921	1072	Per.	353	1909	Jacob Steinmann & Son	New	Hamburg	.....	F.	1916	2
Peace Maker	3376	3120	Per.	3643	1912	Jacob Steinmann & Son	New	Hamburg	.....	F.	1916	1*
Fred Sidney .....	....	4454	Grade	5485	1914	A. K. Meyer	St.	Clements	.....	S.	1917	3*
Favourite's Heir (imp.)	4545	322	Clyde.	152	1901	Jacob S. Meyer	St.	Clements	.....	F.	1912	1
Fyvie Pearl (imp.)	18263	4959	Clyde.	5372	1914	Jacob S. Meyer	St.	Clements	.....	S.	1917	A1*
Palatus .....	....	3025	Grade	3419	1910	Adam Scheffner	St.	Clements	.....	F.	1917	3
Grey Hawk	272	1164	Per.	1509	1900	Nathaniel Martin	St.	Jacob's	.....	S.	1913	1
Coateswood	822	627	St. Br.	749	1905	Joseph Wideman	St.	Jacob's	.....	F.	1914	2
Real Pleasure	2313	5166	St. Br.	5661	1916	Joseph Wideman	St.	Jacob's	.....	S.	1918	1
Lord Myrton (imp.)	14300	852	Clyde.	1748	1910	James Orgram	Wallenstein	.....	.....	F.	1916	1*
Texas Pride .....	....	2031	Grade	2784	1896	J. H. Engel	Waterloo	.....	.....	F.	1914	3
Best Beau	2375	2620	St. Br.	2518	1905	John R. Kaufmann	Waterloo	.....	.....	F.	1914	1
MacQueen of Wellesley	9412	1438	Clyde.	2276	1906	Levi L. Martin	Waterloo	.....	.....	F.	1914	1
The MacQueen	13833	1439	Clyde.	2275	1910	Adam Heipel	Wellesley	.....	.....	F.	1916	1*
Redmichael (imp.)	7411	117	Clyde.	785	1900	John Sherriffs	Winterbourne	.....	.....	F.	1914	1
Sam's Pride (imp.)	14613	4386	Clyde.	4804	1910	John Sherriffs	Winterbourne	.....	.....	F.	1917	1

WELLAND COUNTY.

Black Monarch .....	....	135	Grade	759	1909	Harvey Chambers	Chantler	.....	.....	F.	1916	3
Vizir De Peteghem (imp.)	593	2764	Bel. Dr.	3293	1909	Harvey Chambers	Chantler	.....	.....	S.	1916	1
King Stanton .....	....	169	Grade	1095	1901	H. H. Fry	Fenwick	.....	.....	F.	1914	3
Galinier (imp.)	2203	2045	Per.	1524	1906	R. E. Kells	Fenwick	.....	.....	F.	1914	1
Justicier (imp.)	3033	1924	Per.	2213	1909	Fonthill Percheron Horse Association, Fonthill .....	.....	.....	.....	S.	1916	1
Lord Direct	020	1344	St. Br.	814	1901	J. P. Coan	Niagara Falls	.....	.....	F.	1914	1
Lord Roberts	589	4024	Shire	3214	1908	Geo. A. Misner	Niagara Falls, S.	.....	.....	S.	1917	2
Kavaignac (imp.)	4468	4013	Per.	4087	1910	Ralph Plumb	Port Colborne	.....	.....	S.	1917	1
Javelot (imp.)	3834	2878	Per.	3452	1909	Stevensville Horse Synd.	Stevensville	.....	.....	F.	1916	1
Brigadier General	2235	4768	St. Br.	5345	1912	Robert Bradley	Thorold, Box 1110	.....	.....	S.	1917	1*
Prince Alcyoner	1861	4534	St. Br.	5022	1906	Robert Bradley	Thorold, Box 1110	.....	.....	S.	1916	1
Kaporal (imp.)	3839	3985	Per.	3382	1910	Ella Farr	Welland	.....	.....	F.	1917	1
Billy Direct .....	....	3108	Grade	3567	1907	Jos. Hughes	Welland	.....	.....	S.	1915	3
Central G.	0103	4529	St. Br.	4976	1902	S. Paonessa	Welland	.....	.....	S.	1916	1

*Horse requires inspection.

WELLINGTON COUNTY.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Baron Wallace (imp.)	11104	1771	Clyde.	2370	1905	A. McDonald & Sons	Alma	F. 1914	1
Baron Senwick (imp.)	16408	3866	Clyde.	4221	1911	William Smith & Sons	Alma	F. 1916	1*
Prince Orla (imp.)	4493	1886	Clyde.	2093	1900	W. J. Church	Arthur	F. 1914	1
Dan McCune	....	3975	Grade	4411	1912	Michael Heffernan	Arthur	F. 1916	3*
Lord Dewar (imp.)	13973	2067	Clyde.	2655	1910	Michael Heffernan	Arthur	F. 1916	1*
Sign of Riches (imp.)	6928	790	Clyde.	1817	1898	Michael Heffernan	Arthur	F. 1914	1
Joe McKinley	....	5107	Grade	5520	1914	Andrew Miller	Arthur	S. 1918	3
Jack Connaught	....	4792	Grade	5322	1914	J. Justin Morrison	Arthur	S. 1917	3*
Moncreiffe Charmer	15901	4964	Clyde.	5112	1913	James J. Stack	Arthur	F. 1916	1*
Little Billy	....	1208	Grade	2157	1908	Frederick Near	Ballinafad	S. 1917	3
Lynal	....	2273	Grade	536	1899	Andrew Esson	Belwood	F. 1912	3
Lord Kimberley (imp.)	6111	2893	Clyde.	3416	1904	Richard McLelland	Belwood	S. 1914	1
All in All (imp.)	11883	1515	Clyde.	535	1908	Henry Sargent	Belwood	F. 1916	1
Balcraig (imp.)	6496	563	Clyde.	274	1904	Jacob Maurer	Clifford	F. 1912	1
Donald Davie	17950	5108	Clyde.	5586	1915	Philip Oehm	Clifford	S. 1918	1
Red Duke Junior	5863	4485	Clyde.	4855	1903	Wm. McLean	Conn.	S. 1916	2
Richard Prince	17210	5013	Clyde.	5490	1915	Frederick Sivill	Conn (R.R. 1)	F. 1917	1
Gallant Murray	14583	3008	Clyde.	3363	1910	J. J. Dowling	Drayton (R.R. 1)	F. 1917	1
Lord Moncreiffe	16363	4082	Clyde.	4619	1911	Hugh Webster	Elora	F. 1916	1*
Alnared	225	730	St. Br.	1694	1908	A. C. McMillan	Erin	F. 1916	1
Malton Squire (imp.)	....	4117	Grade	4515	1901	T. H. Robinson	Erin	S. 1915	3
Jet (imp.)	2138	1516	Per.	2495	1909	Waldie Steen	Erin	F. 1916	1
Lovely Baron (imp.)	8452	1606	Clyde.	2494	1907	Waldie Steen	Erin	F. 1914	1
Mr. Gamey	....	1722	Grade	2496	1903	Waldie Steen	Erin	F. 1914	3
Present Fashion (imp.)	7194	2269	Clyde.	534	1904	John Weatherston	Everton	F. 1912	1
Haussmann	2275	3230	Per.	3694	1907	Thos. B. Broadfoot	Fergus	F. 1914	1
Slow Music	1920	4308	St. Br.	4771	1908	A. Groves	Fergus	S. 1916	1
Billy Membrino	....	5143	Grade	5706	1910	A. Irwin	Fergus	S. 1918	3
Willie Todd	....	3163	Grade	3686	1911	A. MacFadzean	Fergus	F. 1916	3*
Cranberry Model	14788	3107	Clyde.	3581	1910	Wm. McLelland	Fergus (R.R. 3)	F. 1916	1*
Prince of Avon	3962	2529	Clyde.	1759	1902	Ananias M. Martin	Floradale	F. 1914	1
Bobby Gold	....	3241	Grade	2423	1909	William Fleet	Glenallan	F. 1917	3
Lord MacQueen	5452	3222	Clyde.	1460	1905	William Fleet	Glenallan	F. 1914	1
Benefactor	15296	3367	Clyde.	3830	1911	James Bowman	Guelph	F. 1916	A1*
Netherlea Heir	18308	4772	Clyde.	5386	1915	Richard Dickieson & Son	Guelph	S. 1917	1*
Gros-Bec (imp.)	1554	2739	Per.	346	1906	Jesse D. Gale	Guelph	F. 1914	1
Carot	....	1986	Grade	499	1902	Leslie Brothers	Guelph (R.R. 2)	F. 1912	3

Elmoore	3610	1978	Per.	2564	1910	H. S. Leslie & Brother	Guelph	F. 1916	1*
Isolia .....	.....	4898	Grade	5338	1913	J. J. McAninch	Guelph	S. 1917	3*
Bright Gem	13213	825	Clyde.	1909	1908	A. M. McCannell	Guelph	S. 1918	2
Scotland's Charmer (imp.)	11305	2485	Clyde.	3145	1908	Samuel Clark	Harriston	F. 1916	1
Bonnie Earl (imp.)	15045	3219	Clyde.	3705	1909	Colin Davidson	Harriston	S. 1917	1
Lord Lamond (imp.)	11307	1837	Clyde.	1984	1907	Thos. Harrison & Sons	Harriston	F. 1914	1
Loustic (imp.)	2261	2900	Per.	3467	1911	Thos. Harrison & Sons	Harriston	F. 1916	1*
Beith Prince (imp.)	13757	3723	Clyde.	1230	1910	John Wilkin	Harriston	F. 1916	1*
Grandee's First	16633	4689	Clyde.	4871	1914	Don. Wilkinson & J. Ritch.	Harriston & Drayton.	F. 1916	1*
Invergowie (imp.)	11468	320	Clyde.	110	1907	Don. Wilkinson & J. Ritch.	Harriston & Drayton.	F. 1914	1
Ivory's Joy	15417	3920	Clyde.	4233	1913	Don. Wilkinson & J. Ritch.	Harriston & Drayton.	S. 1917	1*
Bob Flemington	7918	3220	Clyde.	2179	1905	George Berry	Hillsburgh	F. 1914	1
Image (imp.)	1659	2337	Per.	2923	1908	Jas. Carmichael & R. Davis.	Hillsburgh	S. 1917	1
Ravensraig (imp.)	16860	4904	Clyde.	4577	1912	D. McKinnon & Sons	Hillsburgh	F. 1916	1*
Cyllene (imp.)	13908	1286	Clyde.	1997	1907	George W. Arnold	Mount Forest	F. 1914	1
St. Boswell (imp.)	4373	1775	Clyde.	2522	1901	Neil A. Brown	Mount Forest	S. 1914	1
Duke John (imp.)	12377	1474	Clyde.	2357	1910	John Gilstorf	Mount Forest	F. 1916	1*
Spey Pearl	780	5202	Thor.	5728	1913	Can. Nat. Bureau of Breeding.	Montreal	S. 1918	A1
Scotland's Peer (imp.)	7650	2213	Clyde.	913	1905	Colin Ray	Mount Forest	S. 1915	1
Charlie Gilbert	360	1171	Thor.	548	1904	Can. Nat. Bureau of Breeding.	Montreal	F. 1912	1
Boston Hambleton .....	.....	1007	Grade	1629	1908	E. B. Clancey, Agt.	Guelph	F. 1912	1
Brookfield Laddie	579	1465	Hack.	2205	1906	William Usherwood	Ospringe	S. 1915	3
Prince of Craighton (imp.)	11482	4003	Clyde.	4487	1909	J. F. Husband	Rockwood (R.R. 3) ..	F. 1914	1
Whitegate Pimple	806	3827	Hack.	4259	1912	J. F. Husband	Rockwood (R.R. 3) ..	F. 1916	1
Silver Duke	16586	4838	Clyde.	5350	1914	Robt. Patterson	Rockwood (R.R. 3) ..	S. 1917	A1*
Intro (imp.)	1589	2334	Per.	2994	1908	W. H. Rothwell	Rockwood	S. 1917	1*
Montrave Ronald (imp.)	10077	1432	Clyde.	2092	1898	Fred. J. Wilson	Rothsay	S. 1916	1
The Charmer (imp.) .....	.....	2142	Grade	2466	1902	Alexander Farr	Rothsay	F. 1914	1
Income .....	.....	4630	Grade	2675	1901	Alex. Hahn	Wallenstein	F. 1914	3
King Scott	14502	2740	Clyde.	124	1908	Wellington Jackson	Wallenstein	F. 1914	3
Cranberry Model .....	.....	3107	Grade	3581	1910	Wm. McLelland	Wallenstein	F. 1916	1
						West Garafraxa		F. 1916	3*

WENTWORTH COUNTY.

Grayson	5543	4779	Per.	5202	1913	Fred. L. Horning	Ancaster	F. 1916	1*
Sandy .....	.....	1708	Grade	2581	1902	L. Taylor	Bartonville	S. 1915	3
Majestic Baron (imp.)	13816	1522	Clyde.	1157	1905	Joseph Huty	Binbrook	F. 1914	1
Harvestoun Fanatic (imp.)	656	720	Hack.	1195	1909	Emerson Johnson	Binbrook	F. 1916	1
British Picador .....	.....	281	Grade	1043	1897	Mathias C. Mann	Branchton (R.R. 2) ..	F. 1912	3

*Horse requires inspection.

WENTWORTH COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Dominion Boy	975	1920	St. Br.	1728	1899	George Bickell	Dundas	F. 1914	1
Royal Prince	13262	1688	Clyde.	2051	1910	Hiram Dymont	Dundas (R.R. 2)	F. 1916	1*
Admaston Nuggett .....	.....	3575	Grade	1801	1905	John Gartshore	Dundas (R.R. 3)	F. 1916	3
Peerless	4816	5084	Per.	5637	1915	A. H. Lyons	Dundas	S. 1918	1
Brahmin (imp.)	14087	2304	Clyde.	2986	1910	Donald C. Stewart	Dundas	F. 1916	1*
Infernal (imp.)	1583	1926	Per.	1437	1905	Thos. W. Smith	Glanford Station	F. 1914	2
Karlos (imp.)	3820	3225	Per.	3618	1910	Thos. W. Smith	Glanford Station	F. 1916	1*
Judson MacQueen	12244	4935	Clyde.	5381	1910	J. C. Bowman	Hagersville	S. 1917	1
Bezant (imp.)	318	5077	Thor.	5589	1907	Sir John Hendrie	Hamilton	S. 1918	1
Robert De Marcq (imp.)	816	3433	Bel. Dr.	106	1900	I. L. Martin	Hannon (R.R. 1)	F. 1912	2
Pure Gold .....	.....	3326	Grade	3360	1901	Earl Carons	Sheffield	S. 1914	3
Oro Ree	1144	2783	St. Br.	1291	1901	Francis G. Green	Stoney Creek	F. 1914	1
Raith Standard (imp.)	16108	4238	Clyde.	4702	1913	Jas. D. Weatherston	Troy (R.R. 1)	S. 1917	1*
Charming Pride	17916	5214	Clyde.	5757	1915	Thomas Poulton	Troy	S. 1918	1
Guaranteed Pure Gold	16280	3968	Clyde.	4436	1911	Robert Bell	Vinemount	F. 1916	1*
Lord Ryckman	021	2843	St. Br.	3414	1910	G. E. Hildreth	Vinemount	F. 1916	1*
Kanak (imp.)	2836	2918	Per.	3422	1910	Arthur J. Kenyon	Vinemount	S. 1918	1

YORK COUNTY.

Surname's Pride (imp.)	16459	4749	Clyde.	4898	1914	Laurie Brothers	Agincourt	S. 1918	1
Dunure Gulf Stream (imp.) ..	16859	4005	Clyde.	4578	1910	Patterson Brothers	Agincourt	F. 1916	1*
Grandview Baron	11011	2842	Clyed.	3365	1910	Mair Brothers	Aurora	F. 1917	1
L'Sir Wilfrid Laurier (imp.) ..	2260	3845	Per.	4348	1911	J. F. Playter	Aurora	F. 1916	1*
Hal Pointer .....	.....	4974	Grade	5471	1904	Daniel Whitmore	Aurora	S. 1917	3
Prince Togo (imp.)	8788	717	Clyde.	1234	1901	G. H. & D. Whitmore	Aurora	F. 1912	1
Sir Leopold (imp.)	9747	1908	Clyde.	2307	1901	Harry G. Coomer	Baldwin	F. 1914	1
Bouncing Geordie (imp.)	14581	873	Clyde.	1646	1909	Henry Shaw	Belhaven	F. 1916	1
Sprig of the Valley	16754	4231	Clyde.	4677	1913	A. E. Reynolds	Cedar Valley	F. 1916	1*
Elgin Chief	20588	5178	Clyde.	5662	1916	Jos. Burnett & Sons	Elgin Mills	S. 1918	1
Greffier (imp.)	1095	1898	Per.	2550	1906	Bert Glass	Elgin Mills	F. 1914	1
Craignair (imp.)	7793	910	Clyde.	1564	1905	Cameron & Company	Etbicoke	S. 1915	1
Proud Chieftain (imp.)	9684	142	Clyde.	735	1906	Cameron & Company	Etbicoke	F. 1914	1
Solidity (imp.)	18367	4839	Clyde.	5362	1913	D. Howard & J. Eby	Fairbank	S. 1917	1*
Cornton Gay Lad	14753	3022	Clyde.	3588	1910	Robert Carlisle	Gormley	F. 1916	1*

Chieftain	4583	4488	Per.	1914	William A. Henry & Son	Keswick	F. 1917	1
Sir Walter	.....	967	Grade	1906	Munshaw Brothers	Kettleby	F. 1914	3
Buchlyvie Baron	19092	4845	Clyde.	1914	Hiram P. Davis	King	S. 1917	1*
Elderslie (imp.)	9329	1306	Clyde.	1907	Richard Harman	King	F. 1914	1
Byron Derby	17657	5021	Clyde.	1913	James B. McClure	King (R.R. 2)	F. 1916	1*
Victor Hugo	13464	802	Clyde.	1908	W. J. Wells & Son	King	F. 1916	1
Regent Donald	20304	5179	Clyde.	1915	Alfred Boucock	Lansing	S. 1918	1
Bingen Pilot	264	1309	St. Br.	1902	N. S. Goodison	Lambton Mills	F. 1912	1
Prince of Avondale	19249	4842	Clyde.	1913	O. H. Pugh	Locust Hill	S. 1917	1*
Tony Boy	.....	5180	Grade	1915	E. Banks	Maple	S. 1918	3
Right Forward	4363	3915	Clyde.	1901	W. D. Forster & G. R. Cowie	Markham	S. 1915	1
Peter Wilton	858	775	St. Br.	1905	T. H. Hassard	Markham	F. 1917	A1
The Count of Hillcrest	15774	4502	Clyde.	1913	T. H. Hassard	Markham	F. 1917	A1
Royal Review (imp.)	279	722	Hack.	1904	T. H. Hassard	Markham	F. 1912	1
Pride of Dunedin	17299	5145	Clyde.	1915	T. H. Hassard	Markham	S. 1918	1
Prince Ideal	38	1739	St. Br.	1901	T. H. Hassard	Markham	F. 1912	1
Hanoi (imp.)	1555	1840	Per.	1907	W. H. Johnson	Markham	F. 1914	1
Captain Bryson	1661	3119	St. Br.	1900	H. C. Reesor	Markham (R.R. 1)	F. 1912	1
Baron Alton (imp.)	15295	3118	Clyde.	1911	James Torrance	Markham	F. 1916	A1*
Baron's Court	18366	4759	Clyde.	1911	James Torrance	Markham	S. 1917	A1*
Green's Favourite (imp.)	19656	5034	Clyde.	1914	James Torrance	Markham	S. 1918	1
Hartington (imp.)	19655	5032	Clyde.	1915	James Torrance	Markham	S. 1917	A1
Pearl Prince (imp.)	19657	5033	Clyde.	1912	James Torrance	Markham	S. 1918	1
Sir James of Alton (imp.)	17283	4474	Clyde.	1910	James Torrance	Markham	F. 1917	A1
Shannon Bank Mack	16548	4710	Clyde.	1914	W. H. Tran	Markham	F. 1917	1
Black Benedict (imp.)	3563	2262	Clyde.	1900	Herbert Foote	Mt. Albert	S. 1916	1
Bonnie Solway (imp.)	15293	2939	Clyde.	1911	W. J. Oldham	Mt. Albert	F. 1916	1*
Monto Chimes	.....	3732	Grade	1901	W. J. Rye	Mt. Albert	S. 1915	3
Ouse Bridge Champion	552	593	Shire	1906	Amos Agar	Nashville	S. 1915	1
Lord Minto	.....	594	Grade	1897	Amos Agar	Nashville	F. 1914	3
Buchez (imp.)	4615	1346	Per.	1901	H. Hulse & Chalmers	Black.. Newmarket & Kettleby	F. 1912	1
The Saxon	848	3962	St. Br.	1906	T. Skinner	Newmarket	S. 1915	1
Oro Boy	263	3465	St. Br.	1908	J. E. Walker	Newmarket	S. 1917	1
Knights Differ	308	4281	Thor.	1909	James C. Fletcher	Newtonbrook	S. 1916	1
Proud Gartly	20158	5071	Clyde.	1915	Harry Smith	Newtonbrook	S. 1918	1
Nesbitt MacQueen	14643	782	Clyde.	1906	W. J. Hudgins	Oak Ridges	F. 1914	1
Shipmate	.....	1023	Grade.	1901	W. J. Hudgins	Oak Ridges	F. 1914	3
Cruickston	1012	2266	St. Br.	1903	Edward Mechan	Pefferlaw	F. 1914	2
Prince of Orange (imp.)	7848	2184	Clyde.	1905	Chas. Stiles	Pefferlaw	S. 1915	1
Black Gregor (imp.)	19658	5026	Clyde.	1915	John A. Boag & Son	Queensville	F. 1917	A1

*Horse requires inspection.

YORK COUNTY—Continued.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Clarion (imp.)	15146	2922	Clyde.	3437	1910	John A. Boag & Son	Queensville	F. 1917	A1
Dalziel (imp.)	10626	3406	Clyde.	2442	1903	John A. Boag & Son	Queensville	S. 1913	1
Lord Morven (imp.)	11457	1349	Clyde.	1903	1908	J. B. Cowieson & Sons	Queensville	F. 1916	1
Tik-Tok	740	4501	Thor.	4886	1911	J. B. Cowieson & Sons	Queensville	F. 1917	1
Kendale	20101	5100	Clyde.	5639	1915	F. A. Smith	Queensville	S. 1918	1
Gallant Kyle	7959	1632	Clyde.	642	1906	Henry Smith	Ravenshoe	F. 1914	1
Lambton (imp.)	15299	2845	Clyde.	3400	1911	John Fisher	Ringwood	F. 1916	A1*
Lambton's Heir	19587	5009	Clyde.	5549	1916	John Fisher	Ringwood	S. 1918	1
Colonel of Hillcrest	17335	5085	Clyde.	5640	1915	Henry Mason	Scarboro	S. 1918	1
De Wilton (imp.)	634	3088	Hack.	3620	1906	H. A. Mason	Scarboro	F. 1917	1
Prince	1634	1517	Per.	2341	1909	F. Vivian	Scarboro Junction	F. 1916	1
Gay Sprig (imp.)	7270	539	Clyde.	1495	1904	R. L. Graham	Schomberg	F. 1914	1
Rex Edward	1063	2486	St. Br.	2637	1901	R. L. Graham	Schomberg	F. 1914	1
Baron Minto (imp.)	13980	3877	Clyde.	4257	1906	James Leonard	Schomberg	F. 1914	A1
Tony Morgan	333	2027	Grade	2764	1907	W. C. Hopkins	Stouffville	F. 1914	3
Lord Tinto (imp.)	3633	1141	Clyde.	2109	1898	James McConnochie	Stouffville	S. 1913	1
Netherby Hero	15792	3324	Clyde.	3804	1912	Robt. H. Spofford	Stouffville (R.R. 1)	F. 1916	1*
Top Gallant Prince	16790	3882	Clyde.	4452	1913	Robt. H. Spofford	Stouffville (R.R. 1)	F. 1916	2*
Homestake King	16049	3258	Clyde.	3748	1911	James D. Hamilton	Sutton West	F. 1916	1*
Furioso	....	1560	Grade	2345	1905	Charles Park	Sutton West	F. 1914	3
Royal Rysdyk	....	1577	Grade	641	1903	Charles Park	Sutton West	F. 1912	3
Baron Temple	16342	3752	Clyde.	4280	1911	T. H. Legge	Temperanceville	F. 1916	1*
Dunure Hallmark (imp.)	15378	2914	Clyde.	3483	1911	Robert Cox	Todmorden	F. 1916	1*
Judge Parker	1	3453	St. Br.	2916	1902	Robt. Davies Estate	Todmorden	S. 1913	1
Calgary	410	4285	Thor.	4808	1910	Thorncliffe Stables	Todmorden	F. 1917	1
First Sight	409	3936	Thor.	4346	1910	Thorncliffe Stables	Todmorden	S. 1917	2
Nealon	680	3455	Thor.	3777	1903	Thorncliffe Stables	Todmorden	S. 1915	1
Orme Shore (imp.)	701	3545	Thor.	2914	1901	Thorncliffe Stables	Todmorden	S. 1913	1
King David	950	4996	Thor.	5474	1892	Kinnie Brandon, 622 Kingston Rd., Toronto	Todmorden	S. 1917	2
Jupiter (imp.)	1998	3436	Per.	3788	1905	M. Cockburn	Toronto	F. 1914	1
Burt Axworthy	1845	4286	St. Br.	4774	1908	T. A. Crow	Toronto	F. 1917	A1
Fair Montague	501	4995	Thor.	5493	1912	T. A. Crow	Toronto	F. 1917	A1
Pan Lougin	885	4664	Thor.	5091	1900	Æmilius Jarvis	Toronto	S. 1918	1
Paramount	....	5134	Grade	272	1904	D. McGregor, Hayden Street, Toronto	Toronto	S. 1918	3
Rose Victor (imp.)	12488	212	Clyde.	1202	1909	The Mounce Company, Ltd., Toronto	Toronto	F. 1917	1
Cormier (imp.)	129	1628	Per.	2269	1902	William Pears	W. Toronto	S. 1915	1
Guedo (imp.)	2546	1692	Per.	1897	1906	William Pears	W. Toronto	S. 1915	1

Dunure Captain (imp.)	14126	1299	Clyde.	....1961	1910	A. Gormley	.....Unionville	F. 1916	A1*
Westlothian (imp.)	6753	1298	Clyde.	....1962	1902	F. H. Quantz	.....Unionville	S. 1915	1
Harley (imp.)	....	2901	Grade	....898	1902	Ebenezer Randall	.....Vandorf	F. 1912	3
Jeanes	3251	1922	Per.	....562	1909	David Fountain	.....Weston	F. 1916	1
Croton Forest King	1222	4725	Shire	....5207	1915	John Gardhouse & Sons	.....Weston	F. 1916	1*
Bonaday	1478	4766	St. Br.	....5329	1907	F. J. Husband	.....Weston	S. 1917	1
Finot Jr.	....	2219	Grade	....2937	1899	David Huson	.....Weston	S. 1915	3
Farmer	....	2405	Grade	....3129	1909	W. F. Diceman	.....Woodbridge	S. 1916	3
Dandy	5542	4736	Per.	....5205	1914	R. H. Livingston	.....Woodbridge	F. 1916	A1*

NEW ONTARIO.

ALGOMA DISTRICT.

Name of Stallion.	Can. Rec. No.	Enrol-ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Patchen Joe	....	5151	Grade	....5582	1898	G. A. Vancise	.....Barrie Island	S. 1918	3
Mack	....	5150	Grade	....5718	1907	Henry Vancise	.....Barrie Island	S. 1918	3
Winona G.	171	1437	St. Br.	....2145	1909	P. J. McAvoy	.....Bruce Mines	F. 1916	1
Frank	524	4127	Per.	....4379	1906	J. J. McPhail	.....Bruce Mines	F. 1914	A1
Marquis (imp.)	3554	1581	Per.	....240	1903	J. J. McPhail	.....Bruce Mines	F. 1914	1
Joe Stanton	2461	4668	St. Br.	....4852	1905	J. J. Wright	.....Carterton	S. 1916	1
Baron Echo	....	5156	Grade	....5735	1915	A. Montgomery	.....Echo Bay	S. 1918	3
Clifton Swell (imp.)	13285	1125	Clyde.	....1246	1909	John Balentine	.....Hilly Grove	F. 1916	1
Kirkmam	....	5153	Grade	....5717	1908	Peter McConnell	.....Kagawong	S. 1918	3
King Patch 2nd	....	4651	Grade	....4857	1913	Peter McConnell	.....Kagawong	S. 1918	3
Walter Cavell	....	5154	Grade	....5720	1915	Wallace McConnell	.....Kagawong	S. 1918	3
Gnome (imp.)	806	1969	Per.	....2600	1906	Khull Brothers	.....Laird	F. 1914	1
Black Prince	....	3676	Grade	....4189	1911	Harry McCaffrey	.....Larchwood	F. 1916	3
Gazon (imp.)	29	3802	Fr. Co.	....4175	1906	W. J. Nott	.....MacLennan	F. 1914	1
Superior II.	3802	3978	Per.	....4418	1908	Massey Percheron Horse Co.	.....Massey	F. 1916	A1
Royal Direct	14184	4669	Clyde.	....5101	1910	W. H. Tracey	.....Massey	S. 1918	1
Vrowsky C.	....	2784	Grade	....908	1904	John S. Wilson	.....Massey	F. 1912	3
Landais (imp.)	3852	2873	Per.	....3384	1911	A. G. Hyland	.....Richard's Landing	F. 1917	1
Richard Dare	1691	3865	St. Br.	....4122	1910	Cephas Broad	.....Rydal Bank	S. 1917	1
Red Badge	955	2598	St. Br.	....1137	1902	A. A. Moody	.....Sault Ste. Marie	F. 1912	1
Baron Stanley	....	5160	Grade	....5742	1915	Frank Martin	.....Sault Ste. Marie	S. 1918	3

*Horse requires inspection.

ALGOMA DISTRICT—Continued.

Name of Stallion.	Can. Rec. No.	Enrol. ment No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Dazzle Patch	.....	5161	Grade	.....5743	1909	William O'Brien	Sault Ste. Marie	S. 1918	3
The Import	.....	5158	Grade	.....5739	1916	J. S. Partridge	Sault Ste. Marie	S. 1918	3
Starlight	.....	4136	Grade	.....4137	1905	J. C. Sholdice	Sault Ste. Marie	S. 1915	3
Innes Pride (imp.)	11790	4149	Clyde.	.....4589	1908	George Wilding	Sault Ste. Marie	S. 1915	2
Cashier Pride	18073	5159	Clyde.	.....5741	1915	John Wilding	Sault Ste. Marie	S. 1918	1
Fred	.....	5157	Grade	.....5736	1914	Edward Smith	Spanish	S. 1918	3
Prince Win	.....	5155	Grade	.....3980	1913	Hugh McCormack	Thessalon	S. 1918	3
Scottish Marquis	10283	3117	Clyde.	.....3551	1909	Hugh McCormack	Thessalon	S. 1918	1
Hindman's Perfection 2nd	3621	4049	Per.	.....4295	1911	The Wharncliffe Percheron	.....	S. 1918	1
Calgary	.....	5184	St. Br.	.....5732	1909	Horse Company	Wharncliffe	F. 1916	1
	1348					F. A. Van Norman	Webbwood	S. 1918	1

KENORA DISTRICT.

Doc	.....	4087	Grade	.....4602	1910	Gould Brothers	Kenora	S. 1918	3
Dunrobin Laird	.....	4048	Clyde.	.....4571	1913	A. R. Ascough	Kenora	F. 1916	1
Prince	.....	5135	Grade	.....5699	1914	R. M. Skene	Oxdrift	S. 1918	3
Mack	.....	5136	Grade	.....5700	1912	Hugh Thompson	Quibell	S. 1918	3

SUDBURY DISTRICT.

Shire	.....	4951	Grade	.....5425	1913	Aza Paiement	Bleazard Valley	S. 1917	3
Grimpant	.....	3755	Per.	.....4107	1906	Adelard Chenier	Chelmsford	F. 1914	1
Prince	.....	4968	Grade	.....5344	1913	James Hanrie	McFarlane Lake	S. 1917	3

HALIBURTON COUNTY.

London	.....	3601	Grade	.....3408	1905	Samuel Redner	Carnarvon	S. 1914	3
Oliver Prince	.....	1553	Grade	.....2291	1908	Harry Blair	Haliburton	F. 1916	3
Prince of Willowbrook	.....	3196	Per.	.....3538	1911	Sydney Johnston	Lochlin	F. 1916	1
Acme Prince 2nd	16735	4452	Clyde.	.....4769	1913	Samuel Redner	Maple Lake	F. 1917	1
Dr. Walsing	.....	5215	Grade	.....5765	1913	J. J. Martmer	Minden	S. 1918	3
Freier	.....	3543	Grade	.....3840	1905	George Barry	West Guilford	S. 1916	3
Guildford Boy	.....	5114	Grade	.....5576	1907	George Barry	West Guilford	S. 1918	3

MANITOULIN ISLAND.

Luis 2nd	3431	2062	Per.	.....2541	1910	Geo. W. Brydges	Barrie Island	F. 1916	1
King Edward .....	.....	1106	Grade	.....2081	1903	Geo. A. Vancise	Barrie Island	F. 1914	3
Baron Stirling 2nd	10434	3787	Clyde.	.....4123	1906	Roy Brown	Big Lake	F. 1914	1
King Edward I .....	.....	3664	Grade	.....4112	1902	Norman Campbell	Britainville	F. 1914	3
Scots Fir (imp.)	6894	3863	Clyde.	.....4448	1902	James McKinney	Evansville	F. 1914	1
Lord Helsington (imp.)	9802	928	Clyde.	.....1190	1905	S. J. Bradley & J. Stewart	Manitowaning	F. 1914	1
Up-to-date .....	.....	4112	Grade	.....4637	1901	A. J. McCodman	Perivale	F. 1914	3
Baron Knight	14176	1664	Clyde.	.....2520	1909	Wilnot Blackie	Spring Bay	S. 1918	1

TIMISKAMING DISTRICT.

Norman .....	.....	5204	Grade	.....5677	1910	Wm. H. Leavoy	Matheson	S. 1918	3
Jade (imp.)	2206	1342	Per.	.....1543	1909	James Foley	New Liskeard	S. 1917	A1
Royal Kippen (imp.)	3996	3994	Clyde.	.....4430	1901	M. J. Guinane	New Liskeard	S. 1915	1
Chief .....	.....	4957	Grade	.....5467	1910	Wm. Tomblinson	New Liskeard	S. 1917	3
Arion King	986	2324	St. Br.	....186	1899	Chas. Chadwick	New Liskeard	F. 1912	1
Baron Everard (imp.)	15223	3449	Clyde.	....3894	1911	Geo. Tough	Charlton	F. 1916	1

THUNDER BAY DISTRICT.

Young Baron .....	.....	3791	Grade	.....4132	1906	T. T. Lucken	Flint	F. 1914	3
Sir Rouncevalle .....	.....	4107	Grade	.....4568	1902	James Carson	Ft. William	S. 1915	3
Brilliant	3573	1175	Per.	.....320	1905	T. P. Kelly	Ft. William	S. 1915	1
Forest King	11311	4677	Clyde.	.....4516	1910	Alexander Brown	Hymers	F. 1917	1
King .....	.....	5147	Grade	.....5714	1910	R. R. Everett	Murillo	S. 1918	3
Eddie .....	.....	5149	Grade	.....5716	1904	C. S. Merkley	Murillo	S. 1918	3
Peter .....	.....	5148	Grade	.....5715	1909	William Lalne	Rosslyn Village	S. 1918	3

MUSKOKA DISTRICT.

Black Stamp (imp.)	13149	1253	Clyde.	....2021	1910	Leishman & Watson	Bracebridge	F. 1916	1
Star Bingen .....	.....	4925	Grade	.....4511	1910	R. Leishman	Bracebridge	S. 1917	3
Castelar King	3619	3683	Per.	.....4130	1910	Fred. Morris & Jas. Carson	Bracebridge	F. 1916	1
Don Alton .....	.....	3669	Grade	.....4140	1911	Arthur W. Tibbett	Bracebridge	F. 1916	3
Feudal Chief (imp.)	13805	2967	Clyde.	....940	1910	Gifford & David Hollinshead	Huntsville	F. 1916	1
Glitter .....	.....	3987	Grade	.....4139	1899	A. Truster	Huntsville	S. 1915	3
Bonnie Dee (imp.)	13316	3670	Clyde.	....4141	1911	W. F. Somerset	Port Sydney	F. 1916	1
Torr's Black Prince .....	.....	5010	Grade	.....5505	1917	W. F. Somerset	Port Sydney	F. 1917	3
Bonnie Prince Charley	9717	1636	Clyde.	....464	1909	Thomas Short	Reay	F. 1916	1
George Wilkes .....	.....	4924	Grade	.....5274	1912	Thos. G. Patterson	Utterson	S. 1917	3
Geneva King	6009	5216	Per.	.....5764	1916	R. W. Colson	Uffington	S. 1918	2

*Horse requires inspection.

NIPISSING DISTRICT.

Name of Stallion.	Can. Rec. No.	Enrol-ment. No.	Breed.	Fyle No.	Date of Birth.	Name of Owner.	Address.	Date of Insp.	Form of Cert.
Prince	4672	Grade	.....5077	1912	Alexander Girard	Astorville	F. 1917	3
John Lennox	4674	Grade	.....5085	1910	Etienne Beaulieu	Bonfield	F. 1917	3
Paddy	4152	Grade	.....4662	1905	Joseph Arcon	CACHE Bay	S. 1915	3
Gambert (imp.)	403	2376	Per.	.....1839	1906	Ovila Quesnel	Cochrane	F. 1914	1
Prince	4675	Grade	.....5102	1911	James W. O'Brien	Dill Siding	F. 1917	3
Bruno Brino	2571	2519	St. Br.	.....3219	1906	W. J. Spencer	Earlton	S. 1915	1
Henri (imp.)	3829	Grade	.....4030	1907	Edgar Gagne	Field	F. 1914	3
Fairbank	2506	Grade	.....3058	1909	Frederic Boulanger	Great Desert	F. 1916	3
Tommy McNab	4335	Grade	.....4728	1913	Thomas Martin	Kirkland Lake	S. 1918	3
Geranium	4671	Grade	.....4986	1904	Henry Taylor	McCool	S. 1916	3
Jobard (imp.)	2208	1097	Per.	.....919	1909	Archie Cameron	New Liskeard	F. 1916	1
Diamond	5191	Grade	.....5754	1908	Joseph Vacon	North Bay	S. 1918	3
Jack	21	Grade	.....1335	1908	Eusebe Wissell	Ouellette	S. 1915	3
Drummond Chief 2nd	4575	Grade	.....4924	1912	Jos. H. Rose	Rutherglen	S. 1918	3
Lord Kitchener	3821	Grade	.....4420	1903	J. A. Anderson	Powassan	F. 1914	3
Dan	5188	Grade	.....5749	?	Wm. Roberts	River Valley	S. 1918	3
Marly 3rd	5152	Grade	.....5722	1911	Elie & Sousie	Sudbury	S. 1918	3
Dr. John Jr.	5186	Grade	.....5745	1906	A. Cartier	Sturgeon Falls	S. 1918	3
Prince Arbroath	14551	3687	Clyde.	.....4063	1907	Roderick Steep	Verner	F. 1914	1
Pete	5190	Grade	.....5753	1914	Wilfred Pelfred	Verner	S. 1918	3
Boy	5189	Grade	.....5752	1914	Zenon Riberdy	Verner (R.R. 2)	S. 1918	3
John Gaulis	5187	Grade	.....5748	1913	Maxcime Mayer	Sturgeon Falls	S. 1918	3
Noble Alcone	4456	Grade	.....4541	1907	Napoleon Villeneuve.	Sturgeon Falls	F. 1914	3

PARRY SOUND DISTRICT.

Prince Albert .....	.....	4180	Grade	.....4653	1912	James Vanmeer	Burk's Falls	F. 1916	3
Flash Lightning	653	3035	Hack.	.....3536	1908	Wm. Raaflaub & Aylmer	Burk's Falls	F. 1916	1
Baron Thomas	9005	2449	Clyde.	.....3146	1908	Hugh & Jos. Varcoe	Burk's Falls	S. 1916	1
Acadien 2nd	506	5104	Fr. Can.	.....5499	1903	George Ricker	Callander	F. 1917	2
Devitt's Bonny	2830	3986	Clyde.	.....4144	1900	John A. Smith	Loring	S. 1915	1
Royal Range	14427	1591	Clyde.	.....2368	1910	John W. Johnston	Midlothian	F. 1916	1
Baron Wood .....	.....	5213	Grade	.....5763	1909	A. J. Gentles	Parry Sound	S. 1918	3
Lacis (imp.)	3857	3016	Per.	.....3561	1911	John Woods	Parry Sound	S. 1917	1
Young Lampiste .....	.....	3665	Grade	.....4125	1908	John Woods	Parry Sound	F. 1916	3
Hector .....	.....	4207	Grade	.....4666	1910	William Boxwell	Powassan	F. 1916	3
Charles .....	.....	4949	Grade	.....5027	1911	Martin B. Rick	Powassan	S. 1917	3

Black Dick	4923	Grade	.....5270	1913	Fred. Townson	Powassan	S. 1917	3
King Brunstane	1301	Clyde.	....1953	1910	Richard Peever	Powassan	S. 1917	1
Gallant Marcellus	4014	Clyde.	....4439	1906	W. H. Martin	Rosseau	S. 1915	1
King	4343	Grade	.....4757	1907	Fred. Cottrell	South River	S. 1916	3
Major Cormier	4334	Per.	.....4733	1913	W. J. Unger	South River	F. 1917	1
Blacksmith Boy	3667	Clyde.	....4134	1910	McCron & Taylor	Sprucedale	F. 1916	1
Thomas Atkins	5031	Clyde.	....5504	1916	Albert E. Taylor	Starat	F. 1917	1
Norland	52	Clyde.	....257	1907	W. H. Basso	Sundridge	S. 1915	1
RAINY RIVER DISTRICT.								
Speed	5139	Grade	.....5703	1912	Thos. Leech	Barwick	S. 1918	3
Sir Reubin	3955	Clyde.	....4128	1908	Charles Fisher	Emo	S. 1915	1
Lamdiston	5144	Per.	.....5656	1910	R. W. McEachern	Emo	S. 1918	1
Thiers	4864	Grade	.....5429	1899	Herbert Ogden	Emo	S. 1917	3
General Joffre	5015	Grade	.....5421	1914	Willis Burnett	Fort Frances	F. 1917	3
Orozco	3938	Per.	.....4519	1911	Angus Shaw	Fort Frances	F. 1917	A1
Coon	5142	Grade	.....5710	1906	J. L. Wilson	Gameland	S. 1918	3
Charles	5140	Grade	.....5704	1912	L. Bowman	Pattullo	S. 1918	3
Kaneko	5146	Grade	.....5712	1905	William Thistle	Port Arthur	S. 1918	3
Golden Stately	4113	Clyde.	....4472	1909	Jas. B. Cook	Rainy River	F. 1916	1
George Cymblain	3930	Grade	.....4473	1909	R. R. Johnston	Rainy River	F. 1916	3
Sir Russell	5137	Clyde.	....5701	1914	A. J. Hunter	Sleeman	S. 1918	1
Royalist	5138	Grade	.....5702	1915	Arthur Armstrong	Sleeman	S. 1918	3
King	4865	Grade	.....5430	1914	Malcolm McLeod	Stratton	S. 1917	3
Prince	5141	Grade	.....5705	1901	H. Schroder	Stratton	S. 1918	3
OUTSIDE POINTS.								
Waldorf Favorite	4346	Clyde.	....4784	1913	Ezra Plyley	Allan, Sask.	F. 1917	1
Perfect Boy	5006	Clyde.	....5546	1916	William Robert Cragg	Craik, Sask.	S. 1918	1
Johnston Chief (imp.)	2731	Clyde.	....2970	1906	George Fraser	Beech Grove, Que.	S. 1915	1
Valjean	2154	Thor.	.....2876	1906	Canadian National Bureau of Breeding	Montreal, Que.	S. 1915	1
Rex	1990	Mor.	.....2536	1900	Robert Massie	Shawville	F. 1914	1

*Horse requires inspection.

PREMIUMS FOR STALLIONS.

IMPORTANT NOTICE TO STALLION OWNERS.

There will be three Certificates for enrolled horses in 1919. The highest class certificate will be called "Approved Form A1." The second class will be called "Passed, Form 1." The third class, "Defective, Form 2."

The Ontario Department of Agriculture wishing to encourage the keeping, in the Province for service, of the highest type of stallion, have instituted a premium system. Applicants will please note the following points:—

(1) Application should be made to the office of the Secretary of the Ontario Stallion Enrolment Board.

(2) Horses passed on by the Premium Inspection Board and approved, shall be entitled, on being enrolled for that current year, to receive a premium certificate for that year only.

(3) These premium horses having stood or travelled in the Province of Ontario for the season for which the premium is issued, shall be entitled to a cash premium under the following conditions:—

(a) Satisfactory proof to be given that the horses have proved satisfactory foal getters.

(b) Where a stallion has got up to 35 and under 60 foals in his premium year, the premium shall be \$50.

(c) Where a stallion has got 60 foals or over in his premium year, the premium shall be \$100.

The provisions for premiums for the season of 1918 are as above, but are subject to revision for the premium year of 1919.

NOTES REGARDING INSPECTION, FALL 1919.

(1) An alphabetical list of counties is given, which shows the district in which each county is situated, and by referring to that District each stallion owner may ascertain the point most convenient for himself.

(2) Stallion owners will present horses at the hour stated, as the Inspectors have only a limited time to stay at each inspection point.

(3) (a) All horses marked with a star in this Report require inspection, before they can be enrolled for 1919.

(b) All newly imported animals and colts require inspection before they can be enrolled for 1919.

(c) No grade horse can be enrolled in 1919.

(4) Owners of pure-bred horses which do not need inspection to be enrolled for 1919, may present their horses for inspection in order that such horses may be recommended for a higher form of certificate, that is either "Approved A1," "Passed Form 1," or "Premium."

(5) At the places listed in this report the Inspectors may recommend horses inspected for A1, Form 1, or Form 2 certificates. All horses recommended for a higher certificate may on the application of their owner be re-examined for an A1 or Premium Certificate by a Special Board of Inspectors. Horses which are in the Province at the time of inspection, and which have not been presented at this time, will not be granted the Special Board of Inspectors for Premium or A1 certificates for the year 1919.

(6) If a stallion owner is in doubt regarding whether his horse requires inspection or not, he should present the horse in any case, as such inspection if not necessary would be free.

(7) All communications should be addressed to R. W. Wade, Secretary, Ontario Stallion Enrolment Board, Parliament Buildings, Toronto.

ROUTE OF STALLION INSPECTORS IN ONTARIO, SHOWING IN WHICH DISTRICT EACH COUNTY IS SITUATED.

County.	In District Number.	County.	In District Number.
Brant	1	Lincoln	2
Bruce	2, 3	Middlesex	1
Carleton	6	Norfolk	2
Dufferin	3	Northumberland	4, 5
Dundas	6	Ontario	4
Durham	4	Oxford	2
Elgin	1, 2	Peel	3
Essex	1	Perth	1, 2
Frontenac	5	Peterborough	5
Glengarry	6	Prescott	6
Grenville	6	Prince Edward	5
Grey	3	Renfrew	6
Haldimand	2	Russell	6
Halton	3	Simcoe	3, 4
Hastings	5	Stormont	6
Huron	1, 2	Victoria	4
Kent	1	Waterloo	2
Lambton	1	Welland	2
Lanark	6	Wellington	3
Leeds	5, 6	Wentworth	2
Lennox & Addington	5	York	3, 4

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 1.

Consisting of the Counties of Essex, Kent, Lambton, Middlesex, and part of the Counties of Elgin, Perth and Huron.

Place.		Time Inspection Commences.	Date.
Strathroy	American Hotel	1.30 p.m.. Wednesday,	Oct. 16th
Komoka	Graham Hotel	4.30 p.m.. "	" 16th
Melbourne	Wellman's	10.00 a.m.. Thursday,	" 17th
Glencoe .....	.....	3.00 p.m.. "	" 17th
Alvinston	Revere House	10.00 a.m.. Friday,	" 18th
Oil Springs .....	.....	5.45 p.m.. "	" 18th
Petrolia	Tecumseh House	8.30 a.m.. Saturday,	" 19th
Sombra	Smith's Hotel	4.00 p.m.. "	" 19th
Wallaceburg	Dupont Hotel	9.00 a.m.. Monday,	" 21st
Chatham	Garner House	2.00 p.m.. "	" 21st
Thamesville	Empire Hotel	10.00 a.m.. Tuesday,	" 22nd
Belle River .....	.....	8.30 a.m.. Wednesday,	" 23rd
Maidstone .....	.....	3.00 p.m.. "	" 23rd
Essex	Stott's Hotel	5.30 p.m.. "	" 23rd
Kingsville .....	.....	9.30 a.m.. Thursday,	" 24th
Marshfield .....	.....	1.00 p.m.. "	" 24th
Blytheswood .....	.....	9.00 a.m.. Friday,	" 25th
Blenheim	Truax Feed Barn	8.30 a.m.. Saturday,	" 26th
Merlin .....	.....	1.00 p.m.. "	" 26th
Dutton	McIntyre House	9.00 a.m.. Monday,	" 28th
St. Thomas	Queen's Hotel	2.00 p.m.. "	" 28th
Belmont .....	.....	4.30 p.m.. "	" 28th
London	Queen's Hotel	10.00 a.m.. Tuesday,	" 29th
Ilderton .....	.....	8.00 a.m.. Wednesday,	" 30th
Exeter	Central Hotel	10.30 a.m.. "	" 30th
Ailsa Craig	Munro	8.30 a.m.. Thursday,	" 31st
Parkhill .....	.....	10.30 a.m.. "	" 31st
Thedford	Holwell	3.00 p.m.. "	" 31st
Forest	Franklin House	9.00 a.m.. Friday,	Nov. 1st
Camlachie	Church Shed	11.00 a.m.. "	" 1st
St. Mary's	Constable House	4.30 p.m.. "	" 1st

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 2.

Consisting of the Counties of Oxford, Norfolk, Waterloo, Brant, Wentworth, Haldimand, Lincoln, Welland, and part of the Counties of Elgin, Perth, Huron and Bruce.

Place.		Time Inspection Commences.	Date.
Stratford	Commercial Hotel	11.00 a.m.. Wednesday,	Oct. 16th
Mitchell	Hicks House	9.00 a.m.. Thursday,	" 17th
Seaforth	Kling's Hotel	1.00 p.m.. "	" 17th
Blyth	Mason's Hotel	9.00 a.m.. Friday,	" 18th
Milverton	Queen's Hotel	4.00 p.m.. "	" 18th
Listowel	Grand Central	9.00 a.m.. Saturday,	" 19th
Brussels	McDonal Hotel	1.00 p.m.. "	" 19th
Atwood	Hotel Atwood	5.00 p.m.. "	" 19th
Lucknow	Cain House	10.00 a.m.. Monday,	" 21st
Tiverton .....	.....	3.30 p.m.. "	" 21st
Ripley	Commercial House	10.00 a.m.. Tuesday,	" 22nd
Bluevale .....	.....	4.00 p.m.. "	" 22nd
Linwood	Linwood Hotel	4.00 p.m.. Wednesday,	" 23rd
Elmira	Zilliax Hotel	9.30 a.m.. Thursday,	" 24th
Kitchener	Grand Central	2.30 p.m.. "	" 24th
New Hambrug	Imperial	4.30 p.m.. "	" 24th
Tavistock .....	.....	10.00 a.m.. Friday,	" 25th
Woodstock .....	.....	9.00 a.m.. Saturday,	" 26th
Thamesford .....	.....	1.00 p.m.. "	" 26th
Mt. Elgin	Frank Harris'	4.00 p.m.. "	" 26th

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 2.—Continued.

Place.		Time Inspection		
		Commences.	Date.	
Tillsonburg	Imperial Hotel	9 00 a.m..	Monday, Oct. 28th	
Port Burwell	Commercial Hotel	2.00 p.m..	" 28th	
Delhi	Darby Hotel	9.00 a.m..	Tuesday, " 29th	
Jarvis	Gus. Wills' Feed Barn	3.00 p.m..	" 29th	
Hagersville	Evans Feed Barn	9.00 a.m..	Wednesday, " 30th	
Waterford	Olmstead's Stable	11.00 a.m..	" 30th	
Brantford	Smith's Hotel	4.00 p.m..	" 30th	
Paris	Royal Hotel	8.00 a.m..	Thursday, " 31st	
Harrisburg		10.00 a.m..	" 31st	
Dundas		2.00 p.m..	" 31st	
Caledonia		8.00 a.m..	Friday, Nov. 1st	
Vinemount		3.30 p.m..	" 1st	
Smithville	Village Inn	9.00 a.m..	Saturday, " 2nd	
Queenston		4.45 p.m..	" 2nd	
Niagara-on-the-Lake		9.00 a.m..	Monday, " 4th	
St. Catharines	American Hotel	9.00 a.m..	Tuesday, " 5th	

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 3.

Consisting of the Counties of Halton, Peel, Wellington, Dufferin, Grey, and part of the Counties of York, Simcoe and Bruce.

Place.		Time	Inspection	
		Commences.		Date.
Guelph	Winter Fair Building	10.00	a.m..	Wednesday, Oct. 16th
Rockwood	Hurst's Hotel	1.00	p.m..	" " 16th
Moffat .....	.....	4.00	p.m..	" " 16th
Milton	McGibbon House	9.00	a.m..	Thursday, " 17th
Cooksville .....	.....	1.00	p.m..	" " 17th
Brampton	Victoria Hotel	8.00	a.m..	Friday, " 18th
Inglewood	Dent's Hotel	10.00	a.m..	" " 18th
Hillsburg .....	.....	8.00	a.m..	Saturday, " 19th
Orton	Orton Hotel (Deans)	10.00	a.m..	" " 19th
Fergus	Sargent's Hotel	1.30	p.m..	" " 19th
Alma	Temperance Hotel	4.00	p.m..	" " 19th
Drayton .....	.....	9.00	a.m..	Monday, " 21st
Palmerston	Imperial Hotel	10.45	a.m..	" " 21st
Harriston	Collinson House	1.00	p.m..	" " 21st
Mildmay .....	.....	9.00	a.m..	Tuesday, " 22nd
Walkerton .....	.....	1.00	p.m..	" " 22nd
Cargill .....	.....	4.00	p.m..	" " 22nd
Port Elgin	Balmoral Hotel	9.00	a.m..	Wednesday, " 23rd
Tara .....	.....	11.30	a.m..	" " 23rd
Presque Isle .....	.....	4.00	p.m..	" " 23rd
Chesley	McDonald House	10.00	a.m..	Thursday, " 24th
Elmwood .....	.....	4.30	p.m..	" " 24th
Durham .....	.....	9.00	a.m..	Friday, " 25th
Holstein .....	.....	1.00	p.m..	" " 25th
Mount Forest	Collins' Hotel	9.00	a.m..	Saturday, " 26th
Cedarville .....	.....	1 00	p.m..	" " 26th
Arthur	Royal Hotel	5.00	p.m..	" " 26th
Grand Valley	Forgrave's Hotel	10.00	a.m..	Monday, " 28th
Monticello .....	.....	2.00	p.m..	" " 28th
Orangeville	Queen's Hotel	8.00	a.m..	Tuesday, " 29th
Laurel .....	.....	10.00	a.m..	" " 29th
Shelburne	Moat's Livery	1.00	p.m..	" " 29th
Proton .....	.....	9.30	a.m..	Wednesday, " 30th
Markdale	Markdale House	1.30	p.m..	" " 30th
Bognor .....	.....	5.00	p.m..	" " 30th
Heathcote .....	.....	9.00	a.m..	Thursday, " 31st
Stayner .....	.....	4.00	p.m..	" " 31st
Duntroon .....	.....	9.00	a.m..	Friday, Nov. 1st
Creemore .....	.....	12.00	noon.	" " 1st

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 3.—*Continued.*

Place.		Time Inspection Commences.	Date.
Everett		5.00 p.m..Friday,	Nov. 1st
Elmvale	Queen's Hotel	2.00 p.m..Saturday,	" 2nd
Sturgeon Bay		4.00 p.m.. "	" 2nd
Oro Station		10.00 a.m..Monday,	" 4th
Craigvale		5.30 p.m.. "	" 4th
Cookstown	Coulter's House	9.00 a.m..Tuesday,	" 5th
Tottenham	Maple Leaf Hotel	3.00 p.m.. "	" 5th
Caledon East	Beamish's	9.30 a.m..Wednesday,	" 6th
Bolton	Queen's Hotel	3.00 p.m.. "	" 6th
Woodbridge		9.00 a.m..Thursday,	" 7th
Weston	Central Hotel	1.00 p.m.. "	" 7th

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 4.

Consisting of the Counties of Ontario, Durham, Victoria, and part of the Counties of York, Simcoe and Northumberland.

Place.		Time Inspection Commences.	Date.
Toronto .....		.... a.m..Wednesday,	Oct. 16th
Agincourt		4.00 p.m.. "	" 16th
Markham	Arlington Hotel	9.00 a.m..Thursday,	" 17th
King .....		.... p.m.. "	" 17th
Aurora	Queen's Hotel	8.30 a.m..Friday,	" 18th
Bradford	Queen's Hotel	11.00 a.m.. "	" 18th
Pine Orchard		2.00 p.m.. "	" 18th
Mount Albert	Foote's Hotel	4.30 p.m.. "	" 18th
Sutton	Station Hotel	9.00 a.m..Saturday,	" 19th
Brechin		1.00 p.m.. "	" 19th
Beaverton	Beaverton House	4.30 p.m.. "	" 19th
Woodville	Woodville House	8.30 a.m..Monday,	" 21st
Cannington .....		.... a.m.. "	" 21st
Bobcaygeon	Kenny's Hotel	2.00 p.m.. "	" 21st
Lindsay	Mander's Hotel	4.30 p.m.. "	" 21st
Fenelon Falls	McArthur House	1.00 p.m..Tuesday,	" 22nd
Coboconk		8.00 a.m..Wednesday,	" 23rd
Kirkfield		1.00 p.m.. "	" 23rd
Omeme	Commercial Hotel	1.00 p.m..Thursday,	" 24th
Millbrook	Queen's Hotel	4.30 p.m.. "	" 24th
Campbellcroft		9.00 a.m..Friday,	" 25th
Cobourg	Balmoral Hotel	5.00 p.m.. "	" 25th
Bowmanville	Bowman House	9.00 a.m..Saturday,	" 26th
Pickering	Gordon House	3.30 p.m.. "	" 26th
Brooklin	Caldwell's House	9.00 a.m..Monday,	" 28th
Port Perry	Sebert House	9.00 a.m..Tuesday,	" 29th
Blackstock		1.00 p.m.. "	" 29th
Uxbridge		4.30 p.m.. "	" 29th
Stouffville		9.00 a.m..Wednesday,	" 30th
Claremont	Wilson's Hotel	1.00 p.m.. "	" 30th
Myrtle	Myrtle House	9.00 a.m..Thursday,	" 31st

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 5.

Consisting of the Counties of Peterboro, Prince Edward, Hastings, Lennox & Addington, Frontenac, and part of the Counties of Northumberland and Leeds.

Place...		Time Inspection Commences.	Date.
Peterboro	Munro House	10.00 a.m..Wednesday,	Oct. 16th
Hoards		4.00 p.m.. "	" 16th
Hastings	Clarendon House	8.30 a.m..Thursday,	" 17th
Foxboro	Rose Temperance House	1.00 p.m.. "	" 17th
Stirling	Whitty's Hotel	8.00 a.m..Friday,	" 18th

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 5.—Continued.

Place.		Time Inspection	
		Commences.	Date.
Maynooth	Smith's Hotel	9.00 a.m..	Saturday, Oct. 19th
St. Ola		2.00 p.m..	" " 19th
Eldorado	Jones' Hotel	3.00 p.m..	Monday, " 21st
Marmora		10.30 a.m..	Tuesday, " 22nd
Wooler	L. N. Easterly	10.00 a.m..	Wednesday, " 23rd
Wellington	Alexandria Hotel	3.00 p.m..	" " 23rd
Consecon		5.00 p.m..	" " 23rd
Adolphustown		.... a.m..	Thursday, " 24th
Picton		8.30 a.m..	Friday, " 25th
Belleville	Crystal House	3.00 p.m..	" " 25th
Centreville		....	Saturday, " 26th
Kingston	Royal Hotel	9.00 a.m..	Monday, " 28th
Kingston Mills		9.00 a.m..	Tuesday, " 29th
Sunbury		12.00 noon.	" " 29th
Battersea		4.00 p.m..	" " 29th
Gananogue	Shield's Hotel	9.00 a.m..	Wednesday, " 30th
Brockville	Grand Central Hotel	3.00 p.m..	" " 30th
Westport	Hogan's Hotel	12.45 p.m..	Thursday, " 31st

ROUTE OF STALLION INSPECTORS IN DISTRICT NO. 6.

Consisting of the Counties of Lanark, Renfrew, Carleton, Russell, Prescott, Glengarry, Stormont, Dundas, Grenville, and part of the County of Leeds.

Place.		Time Inspection	
		Commences.	Date.
Perth	Revere House	9.00 a.m..	Wednesday, Oct. 16th
Bathurst Sta. (Wemyss)		1.00 p.m..	" " 16th
Smith's Falls	Russell House	9.00 a.m..	Thursday, " 17th
Toledo	H. Leggett's Hotel	....	" " 17th
Osgoode Station	Nixon Hotel	9.30 a.m..	Friday, " 18th
Kemptville	McPherson House	1.00 p.m..	Friday, " 18th
Inkerman		4.45 p.m..	Friday, " 18th
Winchester	Winchester House	10.00 a.m..	Saturday, " 19th
Chesterville		12.30 p.m..	" " 19th
Winchester N.		4.00 p.m..	" " 19th
Russell		8.00 a.m..	Monday, " 21st
Green Valley		1.00 p.m..	" " 21st
Glen Robertson		11.00 a.m..	Tuesday, " 22nd
Dalkeith		2.30 p.m..	" " 22nd
Vankleek Hill	Windsor Hotel	9.00 a.m..	Wednesday, " 23rd
Alfred	Prescott Hotel	1.00 p.m..	" " 23rd
Orleans		10.00 a.m..	Thursday, " 24th
Vars		9.30 a.m..	Friday, " 25th
Billings Bridge			" 25th
Stittsville	Lewis House	5.30 p.m..	" " 25th
Carp	Dooley House	10.00 a.m..	Saturday, " 26th
Dunrobin		1.00 p.m..	" " 26th
Kinburn		4.00 p.m..	" " 26th
Arnprior	Campbell House	8.30 a.m..	Monday, " 28th
Glasgow		11.00 a.m..	" " 28th
Renfrew	Hotel Renfrew	9.00 a.m..	Tuesday, " 29th
Caldwell Sta. (Hyndford)		1.00 p.m..	" " 29th
Beachburg	Tracey's Hotel	....	Wednesday, " 30th
Barry's Bay	John Billing's Hotel	2.00 p.m..	Thursday, " 31st
Killaloe		4.30 p.m..	" " 31st
Pembroke	Leeland Hotel	1.30 p.m..	Friday, Nov. 1st

Ontario Department of Agriculture

FOURTEENTH ANNUAL REPORT

OF THE

Vegetable Growers' Association

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

Printed by
WILLIAM BRIGGS,
Corner Queen and John Streets,
TORONTO.

*To His Honour, SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.*

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I herewith present for consideration of your Honour the Annual Report of the
Ontario Vegetable Growers' Association for 1918.

Respectfully yours,

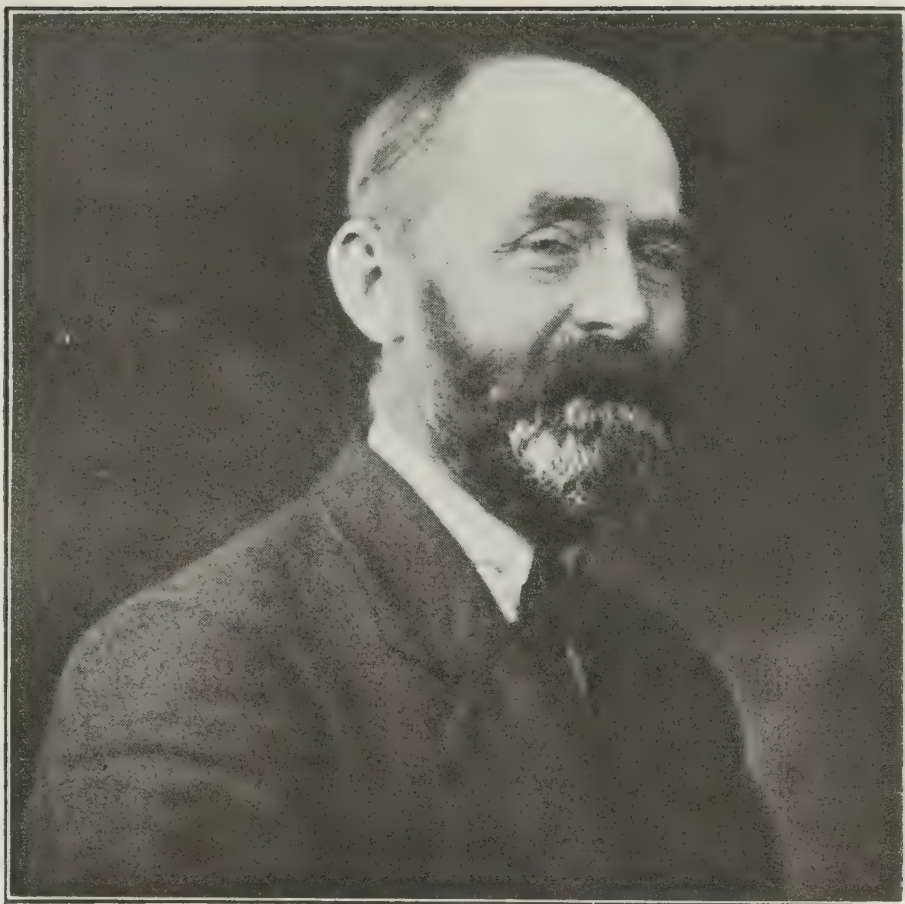
GEO. S. HENRY,

Minister of Agriculture.

TORONTO, 1919.

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W. S. EBORALL,
President.

Ontario Vegetable Growers' Association

OFFICERS AND DIRECTORS, 1919

President: W. S. EBORALL, Beamsville.

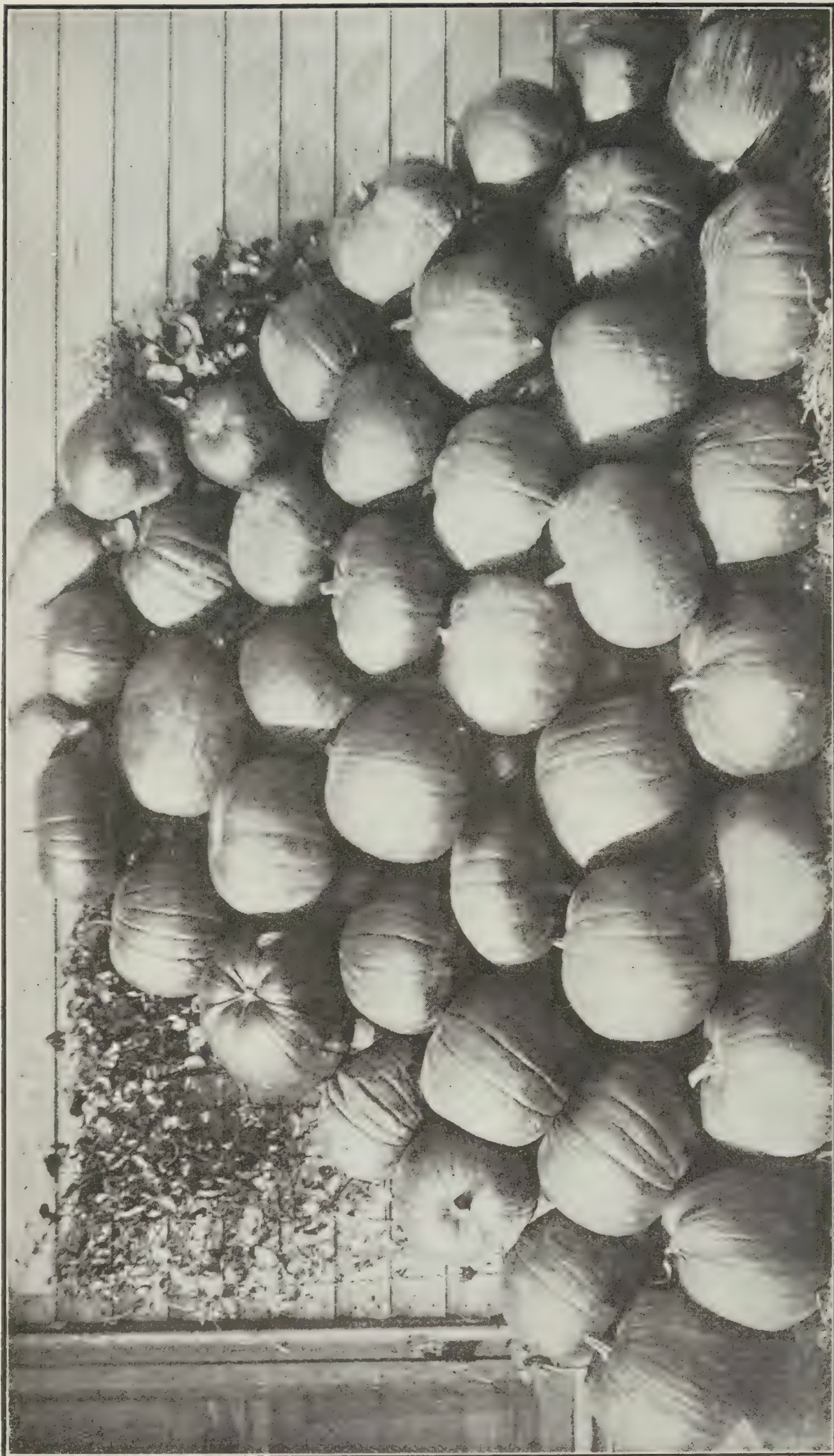
First Vice-President: MAURICE MAY, Tecumseh.

Second Vice-President: G. H. POAD, London.

Secretary-Treasurer and Editor: J. LOCKIE WILSON, Toronto.

Executive Committee: W. S. EBORALL, M. MAY, G. H. POAD, J. LOCKIE WILSON, F. F. REEVES, J. J. DAVIS, THOS. DELWORTH.

Directors: GEO. ELVINS, Belleville; D. H. SITTER, Sarnia; I. A. FARQUHARSON, Ottawa; C. F. KITNEY, Peterboro; WM. GUTHRIE, Sarnia; C. W. DEMPSEY, Stratford; T. K. AYMER, Humber Bay; A. NELSON, Fonthill; J. W. SMITH, Sarnia.



Good pumpkins weighing from 35 to 50 lbs.

Ontario Vegetable Growers' Association

FOURTEENTH ANNUAL CONVENTION.

The Fourteenth Annual Convention of the Ontario Vegetable Growers' Association was held in the New Masonic Temple, corner of Yonge St. and Davenport Road, Toronto on Wednesday, January 22nd, 1919, and was the largest and most enthusiastic Convention ever held by this Association.

PRESIDENT'S ADDRESS.

J. J. DAVIS, LONDON.

I welcome you to the Fourteenth Annual Convention of the Ontario Vegetable Growers, and in so doing I am not unmindful of the fact that we meet to-day under much happier conditions than for the last four years. The long nightmare of war with its horrors and privations is over and thanks be to God, and to the efforts of our brave lads, victory sits on our helm; and we are now free to pursue the fruits of our industry in peace.

The past two years have been a period of trial to a great many vegetable growers, owing to the fact that everybody from the Minister of State down to the school boys and girls were exhorted and induced to grow vegetables, and naturally such keen competition as this was keenly felt by those whose livelihood depended on the sale of vegetables; yet I am proud to say that the vegetable growers of the Province, as a whole, accepted the situation in a good spirit as a necessity arising out of the war and carried on notwithstanding it. I anticipate that this competition will subside if it does not altogether die out now that the fear of a food shortage is over, and it may well prove to be not altogether a loss to us as undoubtedly a great many people have learned that fresh vegetables are a wholesome and necessary article of diet, and a great many others will have acquired a liking for them.

The war has also had an adverse influence on our organization, as regards membership, as many of our younger members went overseas and those who were left had a great deal more work thrust upon them, and could not give of their time as freely as heretofore. But now that the war is behind us and the boys are returning I trust that we shall be able not only to recover lost ground, but to make substantial advances. I am able to report a renewal of activity and enthusiasm in the London Branch and that plans are under way which will no doubt materially add to our strength.

What of the future? The star of Canada is now in the ascendancy. I see no reason why Canada should not go on growing and expanding until she becomes a great nation, for it is admitted on all sides that the quality of her manhood and womanhood is of the best. Her natural resources are stupendous, and the sane and logical thing to do with those vast resources is to manufacture them within our own borders and thereby build up a large industrial population, which, in turn, would consume more and more of the products of the farm and garden; and, moreover, enable us to send not half a million but one and a half million of men the next time that the Empire needs defenders.

The whole world is now undergoing a process of reconstruction, and I should like to say in this connection that the life of a vegetable grower is a long period of reconstruction and re-adaptation, and the man who can most readily adapt himself to changing seasons and changing conditions of growing and marketing and changing methods of combatting insect and fungus diseases is the one who is most likely to make a success of his undertaking.

I should like to say a word on behalf of the returning soldiers. It may be that some of them will take up vegetable growing, and as some of them perhaps will not have had much experience, it occurs to me that we who have had years of experience may be able to render them invaluable help in return for the services they have rendered us.

REPORT OF THE SECRETARY-TREASURER.

J. LOCKIE WILSON, TORONTO.

After four strenuous years of the world's greatest war, with the foundations of freedom and justice trembling in the balance, we come again at this gladsome Christmas tide with prayer on our lips that real peace upon earth and goodwill to men will reign supreme in the councils of the nations.

Till the war-drum throbbed no longer; and the battle-flags were furled
In the parliament of man—the federation of the world.

Many of your sons are marching proudly home with victory perched on their banners; many, alas! too many of our gallant boys lie sleeping under the golden lilies of France and in the shot-shattered fields of Flanders.

Looking into your faces to-day I can truly say with the ancient Scottish Chieftain that "All of us are fathers and our sons are with the King." Overworked many of you have been in the past four years, striving to do your part in assisting in the feeding of a hunger-driven world. Sometimes the strain was near the breaking point, but hope, that eternal springs within the human breast, buoyed you up "till our lads come home," which happy time cannot come too-soon.

It was considered advisable by your Executive not to push the organization of new branches during the war, but the consensus of opinion is that 1919 should be made a year of great development in the work of our Association. Many new branches should be formed and the purchasing of supplies co-operatively should be taken up with zeal and enthusiasm along modern business lines.

Another matter that should receive the attention of your new Board is the marketing of your products, which has worked so well among those of our branches, which have taken this up in a business-like way.

I am pleased to report that our crop competitions this year are quite up to the standard, and the quality of the exhibits of the prize winners shown at the Canadian National, Central Canada and Western Fairs was never surpassed. The crops entered were; onions, tomatoes, celery, early potatoes, cabbage, and melons. Keen interest was shown in the garden competitions and the judges report progress along this excellent line of endeavor.

Shipments to the different fairs, especially of perishable garden products, are receiving the attention of the Executive. In many cases the tomatoes arrived in bad condition at the points where they were to be exhibited. Boxes were supplied

to those who exhibited tomatoes, the vegetable most liable to crushing, of the following size; 12 x 18 x 5 inches. They were usually packed in the boxes in two layers without wrapping, and the jolting they were given by the transportation companies practically destroyed the tomatoes in many cases. The best method hitherto of making shipments was to have a bottom layer put in, wrapped in paper similar to the practice in apple-packing, then a sheet of corrugated paper placed over the first layer, then the top layer is carefully packed in after being wrapped and another sheet of corrugated paper laid on top before the lid is put on. When packed in this manner, the exhibits arrived in fairly good condition. This year the Executive are arranging to adopt the plan used in the packing of eggs with two sets of cardboard squares to be supplied with each box. Each tomato will then have a separate compartment in the box. Before placing them in these squares, they will require to be carefully wrapped in paper. By this system your Executive are confident that the exhibits will arrive at their destination in first class condition. Tomatoes should not be over ripe when packed. Potatoes are shipped in boxes containing half a bushel and always arrive in good condition. For onions the boxes are the same size as for tomatoes.

Owing to the increased supply of coal, greenhouse vegetable growers have not found the same difficulty as they had in the winter of 1917-18. The supply of early greenhouse vegetables has thus been increased to an appreciative extent.

The members of our Association have pretty largely adopted standard varieties of potatoes. Irish Cobbler and Early Ohio for the early crops are apparently the ones that have given the best satisfaction, particularly in the older sections of Ontario. In the tomato crop there would seem to be a necessity for standardization, as several varieties are being grown in each district. For instance, in Districts 1, 2 and 4 competitors entered six varieties and in district 3, five.

In the cabbage competitions our rules do not seem to define clearly enough as to whether the crop exhibited should be early or late varieties. This is a point that should be definitely settled.

It has been suggested, with regard to the arrangement of the districts, that a new one be formed in the Niagara Peninsula. It will be necessary before a new district can be organized that there be not less than four branches formed in that section. If this was done there does not seem to be any valid objection to the formation of a new district. Representations will, doubtless, be made by the delegates from that section.

I am pleased to report that, on the whole, the work of our Association has been very satisfactory during the year that has passed, as will be noted by your Treasurer's report. A substantial balance remains to the credit of the Association after closing up the year's business. The prospects for the incoming season for a big demand for your products should be good, indeed. Upwards of 60,000 returned soldiers, many of them with British brides, will be added to the population of Toronto and its suburbs alone and to the other large urban centres in proportion. This will mean a large increased consumption of the splendid food stuffs you produce and from the ranks of these men will come the much needed aid you require in the development of your industry.

I thank you for the hearty co-operation you have always given and for the pleasure it has been for me to work with the substantial business men of this enterprising Association.

FINANCIAL STATEMENT.

December 1st, 1917, to November 30th, 1918.

RECEIPTS.		EXPENDITURE.	
Balance on hand from 1917 ..	\$880 53	Express on boxes for vegetable exhibits	\$9 77
Grant	800 00	Vegetables for renewal of exhibits	27 95
Membership	62 00	Expenses to Executive and Directors' Meetings, 1917, 1918	324 25
Entry Fees for Field Crop Competition	207 00	Auditor	5 00
Entry Fees for Garden Competition	34 00	Stenographic services, 1917, 1918	60 00
Interest	46 91	Boxes for vegetable exhibits ..	47 82
Uncashed cheques	7 00	Stencil for boxes	2 50
		Buttons for conventions	50 00
		Prizes for Membership Competition, 1917	45 00
		Stationery	22 50
		Cuts for reports	3 00
		Postage	5 00
		Petty cash	5 00
		Prizes in Garden Competition ..	283 00
		Prizes in Field Crop Competition	487 50
		Balance on hand	659 15
	\$2,037 44		\$2,037 44

F. F. REEVES: Mr. Wilson in his report mentioned the number of varieties, and discussed the question of standardization. So far as my knowledge is concerned, I find that it is not so much that there are many varieties but that there are five or six different names for the same variety. Take tomatoes, for instance, every seedman gives a new variety a special name and this leads to confusion. The question of packing was settled at the Directors' meeting.

Regarding cabbage competition last year. With the consent of the Executive, I told all exhibitors that they were to show cabbage, either from the crop they entered in the competition or from another one because it was not possible to keep all those from the plot that they had entered in the competition.

J. LOCKIE WILSON: The giving of several names to a new variety is an argument in favor of standardization of grain and vegetable crops grown in this country. The idea of standardizing our varieties is sound, and the time is coming when the Government at Toronto and Ottawa will be asked to enact a law that where any one claims to have evolved a new variety, he will have to submit it to a specialist either at Guelph College or the Central Experimental Farm at Ottawa or to both of these. If, when tested, it is found to be a new and valuable variety it might very well be accepted by us.

A. H. McLENNAN: Mr. Cooke has brought up a point in regard to tomato seed. He says it will mix. My own experience with it in different parts of the Continent indicates that a variety will not mix for more than two or three rows, except through bumble-bees, and they will not touch tomatoes unless they have to. The seedsman buys from two or three commercial seed producers. There are one or two seedsmen who grow special varieties—Heinz, Bristol, Pennsylvania, grow special seed. They have about 250 acres divided among six or seven varieties and the only precaution they took was to put two rows of beans between each variety of tomato.

A man should start with a good standard variety from either Guelph or Ottawa, and then select his own from that time on. We are trying at the present time to get out a judging standard, and in it will be placed a picture of a typical specimen, and when we have that, each one of us can grow his own variety. I think Mr. Cook's idea can be explained in this way. He was up against a problem of a second generation, where seed will develop into everything you can think of. You will always find in the production of seed, especially tomato and cucumber that the mixture was made somewhere else than right in the field, and these growers are getting the second year mixture. The sooner we do the straight selection work for ourselves, the sooner we will get standard seed that no seedsman can give us.



Well-cultivated Celery Crop.

J. J. DAVIS: That is a point that is well taken. If we are to get a really good type of vegetable, we must select and re-select. Fix the idea in our minds as to what we want, and then select with that idea in mind.

J. LOCKIE WILSON: We want to bring our distant branches a little closer to the large exhibitions by having that up-to-date method of packing. The far-off exhibitor has been pretty heavily handicapped, because his stuff did not arrive in good condition. But now with the improved idea of packing in these squares neatly wrapped and carefully packed, the vegetables of the London, or Sarnia man when he ships to Ottawa, will be in as good a condition as those of the grower nearer at hand.

J. J. DAVIS: Regarding the time of sending these vegetables, we generally have to ship them on Saturday night so that they will arrive on Monday morning. It is a long time to have vegetables in transit so as to keep in exhibition condition. If it could be arranged for these vegetables to be shipped on Monday morning, they would look much better at the exhibition, because, no matter how carefully you pack and care for the vegetables, if they are shipped on Saturday night and do not reach the exhibition until Monday morning they will not look very well.

KINGSTON MEMBER: Our busiest days in the week are Friday and Saturday—Saturday is market day. We have to get our stuff ready for Toronto exhibition on Friday afternoon, the busiest day of the week and then it is judged there on Tuesday. It is impossible for us to compete under those conditions. Our stuff is in transit too long.

A. H. McLENNAN: I was at three exhibitions to which vegetables were shipped and it seemed to me that if you are going to have the stuff shipped there from outside districts late in the week, it would be a good idea to have it judged at the end of the week instead of the beginning of the next. As some of you know, a considerable quantity of the stuff was shipped there which it was impossible to keep over. Some of the vegetables were sent in perfect condition and it seems to me, not only is the time of shipment to be considered, but the time of judging must also be kept in mind.

KINGSTON DELEGATE: The only trouble is that you want the goods for exhibition purposes. If the vegetables are not shipped for exhibit when the fair opens, it would be better to ship and judge them later.

J. LOCKIE WILSON: The only difficulty at these fairs is that the Canadian National opens on Monday. The newspaper men come around at the opening of the fair. We like to have our Vegetable Growers show up well on the official opening on Tuesday. The newspaper men take notes of the exhibits, and if they are put up in decent shape and looking well, as in the past, it is a good advertisement for the men who have them there, because we arrange to have the names of those who exhibit and the varieties on the cards, as we like to have everything looking as well as possible on the opening of the fair.

A. H. McLENNAN: This is my first chance to meet you since I took over Mr. Johnston's work in the spring. In him the Vegetable Growers of the Province have lost one of the best friends they had. While a very young man, and seemingly younger than he really was, I knew Mr. Johnston for a good many years, both in college and very intimately since. He was a man with a great deal of foresight, whom, once he put his hand to the plow, nothing could stop.

Just a word about working among returned soldiers. I started with a class of six and now have fourteen. These are a type of men who having done their bit across the Ocean, are not in a fit physical condition to return to the work that they had before. They want to get into this kind of work. We must first show these men what they are up against. It is not a question of setting them on a piece of ground, and saying "Here is your land, now work it." You know as well as I do that no matter how carefully a man tries to instruct them in market gardening, they will have to be looked after for two or three years. I feel that the larger share of my work should be among these men. There is work that I want to do for you, and I don't think any of you need to worry about the market. A good many of you worried about the backyard-garden, but none of you will say that it hurt the vegetable growers. The returned soldier is not going to hurt you. The fact is, he is going to help you. My idea is not to place them in Northern Ontario, but

to put them as near as possible to the centre of the market gardening district, where they will have object lessons every day in the year, and where you can help them a great deal because the old idea of keeping what knowledge you have to yourself is past. By giving this out to the returned soldiers you will be making a friend of the men who have gone and fought for you. It is up to us to make it as comfortable for them as we can.

REPORT OF THE VEGETABLE SPECIALIST FOR 1918.

A. H. McLENNAN, TORONTO.

As most of you are aware, a change was made in the Branch last March. The late Mr. S. C. Johnston gave up his work to devote all his time to the Motion Picture Bureau, and I was appointed in his place. Owing to certain circumstances there was no funds to carry on the work until late in May, and for that reason much of what was planned had to be left over until this year.

While a considerable amount of work was carried on, much of my time was devoted to getting acquainted with the parts of the Province farther away from the chief markets. This work was very necessary from the fact that many of our returned men wish to make gardening a part of their business and as many of them come for advice in buying land it is necessary to have a first hand knowledge of every section.

The Vegetable Survey has been finished this year, but has not been fully tabulated as yet. Owing to Mr. Reeves' illness last fall this work was delayed, but was finally finished by Mr. Rush and myself. This work has shown that our growers do not make the use of vegetable experimental work that they might.

Mr. G. O. Madden, who has been with us since last year, left in September, Mr. Madden had in hand considerable experimental work, especially on cabbage maggot, and his resignation is regretted.

The cabbage maggot has been very troublesome this year, many new sections reporting it, and it will be necessary to work in these during 1919. Very satisfactory results were obtained this year in the control of cabbage maggot with Corrosive Sublimate; 1 oz. to 10 gals. of water. This remedy has been tried for the past seven years and has proved satisfactory. We can show many results where only 2 per cent. loss occurred. 322 cabbage in one patch were treated at a cost of \$1.75. Prof. Caesar, who has taken up the study of the life history of this pest as well as the Onion and Radish maggot, has obtained similar results. The one point that must be kept in mind is the time of first application of the spray. This should be the 4th or 5th day after setting and each week thereafter for three weeks. The easiest way to destroy this pest is in the egg stage. Note when the eggs are laid by looking around the plant stem for them. There is only one disadvantage to this remedy and that is its effect on the bacteria in the soil. For this reason we tried out a new remedy in 1918—a saturated salt solution—and hope to get more definite data this year. We often find growers who desire to follow with late cabbage or cauliflower after the early crop. Often the early crop has been badly affected with the maggot. This year we found that we could save 90 per cent. of the late crop even where the soil in which they were planted was filled with eggs and larvae.

We had been trying to find some method to control Onion Blight. Bordeaux Mixture apparently has but little effect on it. Last year we tried using a top dressing of Nitrate of Soda when the bulbs were forming and results justify our trying it out more completely this year.

Black Heart in celery can be controlled by the use of "Black Leaf 40" in the Bordeaux Spray—4 oz. to 40 gallons Bordeaux. Our work this year shows that this disease may be caused by both the Tarnished Plant Bug and a black-green aphid. On a patch containing 352 dozen we had a loss of 5 dozen due to Black Heart, after careful successive spraying. Spraying started June 9th and ended August 9th; 9 times, 54 gals. Bordeaux, 7½ gals. "Black Leaf 40"; cost, \$1.50; Labour, \$5.40; total, \$7.00. Great care, however, must be taken during blanching, as the conditions at that time are favourable for the spread of the disease. It is necessary to prevent any sweating.

That Celery Blight can be cured by Bordeaux Mixture has been amply demonstrated again this year. The addition of Distillate Paraffin Oil as a sticker was tried, but proved unsatisfactory because it burned the foliage. Dusting with sul-



Spraying Outfit.

phur and lime dust was also tried and proved satisfactory. Next year we hope to carry on this dusting work on a larger scale. Work was carried on at London with Formalin treatment—1 pt. to 20 gals. water. This was done on Mr. Geo. Bycroft's patch and one application proved satisfactory, although some slight burning was occasioned where too much liquid was applied or the spray coarse. This method is also worthy of further trial especially where the disease has only obtained a slight hold on the patch, as it kills immediately. It should be followed with Bordeaux mixture.

Considerable success has been obtained in the Province in the control of Tomato Mildew in Greenhouse by burning Sulphur on a shovel. A teaspoonful of Sulphur is wrapped in paper, then set fire to and while it slowly burns a man carries it up and down the alleys in the house.

Aphids on Cabbage and Potatoes were completely controlled by the use of "Black Leaf 40." 1 pt. to 40 gals. of water. One thorough application proved effectual.

A Beaman Garden Tractor was purchased by the Department of Agriculture for exhibition to the growers at the various centres. After considerable delay the machine finally arrived at Guelph in late July and, after being put together, was

given a thorough try out. It was then exhibited to the growers in London, Brantford, Toronto and Kingston. More work will be done with it this season so that the growers will have a better idea of its value. So far it has proved very satisfactory in cultivating.

New Ontario Potato Seed was obtained for some of our growers. It is expected that this seed will help in increasing our returns from this crop. A very considerable amount of Mosaic and Leaf Cure diseases have been found in the growers' fields. These diseases are carried in the seed.

Since December 1st much time has been spent in instructing returned soldiers at the Convalescent Hospital, Guelph. Many wounded men are turning to market gardening as a means of livelihood and it is the duty of each one of us here to help them all we can to get started again. If they are started right they will soon be able to take care of themselves.

A MEMBER: How do you account for parsnips taking precedence over other crops?

A. H. McLENNAN: There is a larger demand for parsnips than people seem to think. In my work this fall I noticed that almost everyone was growing them. In going over the survey blanks it is astonishing to find the number who are growing parsnips and the few growing carrots and beets.

F. F. REEVES: With the exception of carrots for bunching in the spring, there is very little growing of them for winter use among those of us who live near the cities. That is left to the farmers farther out. Most of us grow parsnips.

Mr. C. W. Waid, Lansing, Mich., showed a number of excellent slides illustrating Vegetable Forcing in the United States.

SHOULD THE O.V.G.A. ADOPT THE SUGGESTED STANDARDIZATION OF POTATOES?

HENRY BROUGHTON, SARNIA.

Mr. Broughton opened his address by saying that any opinion he might express would be his own individually, and that what was in the interest of the grower was eventually in the interest of the consumer as well.

He continued, "As growers of potatoes, we know there is a lot of drudgery and backache in that kind of work—a lot of hard work. And the question to-day is—Shall we grade potatoes—is there any need of it? I think discussion as we go along would be beneficial.

F. F. REEVES: There is already a standard adopted by the Dominion Parliament that is optional. Supposing that should be compulsory, how would that fit in with our part of it?

HY. BROUGHTON: I think it would at first discourage potato growers to a certain extent; but I am of the opinion that it would be to the interest of the potato grower himself, for this reason: it will eliminate those careless fellows or the man who grows the small acreage, and it would have a tendency to encourage to specialize and help those who go largely into that kind of work, to take more pains in producing a better sample, a larger yield, and in the end be more profitable.

F. F. REEVES: Take your own district—practically all your potatoes are dug and sold before they are fully grown.

HY. BROUGHTON: When they are fully grown, but not ripe. The skin is not set.

F. F. REEVES: Suppose you had to adopt the grades as already adopted by the Dominion Parliament—don't you think you would be at a loss in selling the potatoes?

HY. BROUGHTON: We would be if climatic conditions were such as last year when we had eight weeks of steady drought. I would prefer for different reasons to have my own crop sold under standard grades. I know many of my neighbors didn't agree with me in that, but when we have got a market for that grade, it would be profitable for us to do so.

A MEMBER: You say that the Act is optional. I understood yesterday that it was compulsory.

J. LOCKIE WILSON: The Act reads, if you sold a man No. 1 potatoes you would be compelled to supply No. 1 potatoes, but if you sell them in a general way without stating what grade they are in, you can supply any kind of potato. The Act is not yet compulsory.

J. J. DAVIS: If you standardized your product and brought it up to a certain grade, undoubtedly you would get a better price for that grade; but at the same time if a great many other growers were to go on selling their product ungraded, would you make a profit in the long run after you had eliminated the smaller potato? Would the increase in price for your better grade more than offset the loss of the proportion of the crop that you had to lose by grade?

HY. BROUGHTON: I am quite sure of it.

J. LOCKIE WILSON: The Government stipulates for Standard 1, a potato $1\frac{7}{8}$ in. in diameter, and for Standard 2, a potato $1\frac{3}{4}$ in. in diameter. Would that be a hardship on the grower?

HY. BROUGHTON: It would. Supposing we start to dig from the beginning of July, and from there to the first of August. That is the most profitable time to dig our crop although it is not matured. We have to compete with the United States crop that comes in from Texas, and they are riper than ours. The Ontario grower should have a little advantage in not being asked to grade to a certain size, say up to $1\frac{7}{8}$ in.; we should not be asked to do that until say the first of September. There should be a period from the first of July until the first of September in which the grade should be lessened. If we do that we could grow quite profitably. Why is it that Ontario has to buy from outside so many potatoes, right up to the general harvesting of the crop? There is no need to spend so much money to get in outside potatoes when we can produce them ourselves. The commercial crop of potatoes in Ontario does not come into the market in a general way until the latter part of August or September. We have six weeks or two months in which the Ontario growers could almost provide them themselves, but we want the standard lower for that particular time when our crop is not large enough.

J. LOCKIE WILSON: Standardization and grading, to my mind, represent two different things. My idea of standardizing a variety would be a certain named variety, such as "Early Ohio" or "Irish Cobbler." And the grading seems to me to have to do with the size of the product.

HY. BROUGHTON: I am taking it for granted that we will use either a white or a red potato. They should not be mixed at all. It spoils the sale of them. The Ohio comes in first and the other varieties follow. At the present time, or at least in the past year, as most growers here know, we have had all sorts and sizes. We do not need more than one variety. The consequence is that in Ontario,

unlike the other Provinces in the Dominion, there is not a wholesaler in Toronto who would take the risk of having to place half a dozen cars of Ontario potatoes of a certain grade. By grading our stuff we can establish our own products. Last week I read in a Toronto paper that New Brunswick potatoes were selling at \$2 a bag and Ontario only \$1.50. We can grow as good potatoes in Ontario as they can in New Brunswick or any other place. It is a matter of seed treatment, fertilization and other matters which the growers can attend to quite well, and if we had a standard and graded potato for commercial purposes, we would increase our markets and the demand for them. We would sell two carloads where we cannot sell half a one at the present time.



Before Storing.

It would also be an advantage to grade our potatoes to protect the honest grower from the indifferent or dishonest man. The honest man puts up the stuff and makes a reputation for himself individually. But that is not helping the Province or the Toronto market, if the other fellows are careless and indifferent. All they are after is to get as much money as they can out of the crop, whether business increases or not; the only way to control those men is to *make* them do a certain thing. If this is not done there is no use in the honest man trying to build up a reputation for his product, except for his own personal good. For the general good he cannot do much.

In grading of potatoes, there should be two grades. I would not have any more than two. I have heard growers in Sarnia say that they would have three, a Fancy, No. 1 and No. 2. A Fancy is no better than No. 1, if No. 1 is put up as it ought to be.

This would encourage the grower to put up a better sample and to eliminate the careless growing and handling of the product. If we had a good fair grade, say $1\frac{3}{4}$ for No. 2 and $1\frac{7}{8}$ for No. 1, it would encourage the grower to produce better crops and to market them in better shape, which would eventually be of profit to himself and all others. I would grade them in two sizes, No. 1, to be not less than $1\frac{3}{4}$ in. in diameter, instead of $1\frac{7}{8}$ in., and not more than 5 per cent. of the run to be under that size. No. 2 I would make $1\frac{1}{2}$ in., and allow 20 per cent. under that size.

J. LOCKIE WILSON: There will not be much left of a potato $1\frac{1}{2}$ in. in diameter, after it is peeled. I am now speaking from the consumer's point of view, but for the early crop the peel being thin, there would not be so much waste as when matured.

HY. BROUGHTON: I am looking at it from the point of the consumer, as well as the grower. It is very important, if you do not want to destroy the potato business, not to get the grade too high.

J. LOCKIE WILSON: Would you allow those grades to stand for the early potatoes?

HY. BROUGHTON: No, not until the first of September.

J. LOCKIE WILSON: Would you want your early potatoes to be smaller than that?

HY. BROUGHTON: Yes. The question if put, "Why so many small potatoes?" brings the answer, "We cannot help it." Last year during eight months of dry weather you simply could not help it, except by irrigation. By good fertilization and looking after the seed end of it, you will not get very many small potatoes. Of course we are at the mercy of the weather. We have got to take that as it comes. But my aim would be in grading, to increase the demand for Ontario potatoes and the only way you could do it would be by standardizing different colors and varieties, and having a proper grade, then we will have a greater market than we have to-day.

F. F. REEVES: The Department has asked us as an Association our opinion on that Act. Do you think as an Association we need it at all?

HY. BROUGHTON: No, that applies the whole year round, and as gardeners our main crop is sold and out of the way before the middle of August. If it came to a vote here to-day I would vote No. But I do think that in the interests of the potato growers of this Province and also of the business generally, they should be graded.

J. LOCKIE WILSON: We must meet conditions as they are and, perhaps, you would not support a condition such as the Government have in mind, yet I think, as reasonably fair business men, it would be well to try to meet those conditions as nearly as possible. If the Government say that their standard for No. 1 should grade $1\frac{7}{8}$ in., and for No. 2, $1\frac{3}{4}$ in. (and I understand they will make it compulsory) I think it would be a good thing for us to meet the Government half-way, because the consumer must be considered in the last analysis. And if he says that a $1\frac{1}{2}$ in. potato is an uneconomic proposition, I would rather buy a reasonably sized potato, he would be perfectly justified in urging the Government to carry out the proposition. But for our Vegetable Growers' Association to absolutely vote against that proposition of standardization of grades and varieties would not be good business. We should bring forward to the Government a counter proposal.

J. W. SMITH, Sarnia: I represent the Lambton growers. I am a neighbor of Mr. Broughton's, and we want to encourage the grower as far as it is possible, and I think what Mr. Wilson has said is right in connection with the consumer. We had our meeting a few nights ago and this matter came up, and, of course, it appeared to the average grower that it was going to be a hardship, and possibly it might be. But we took the matter up in this way. We recommended the grading of potatoes but not to make it compulsory, and our reasons were along this line. We thought that possibly it would be wise to do this to encourage the man who is going to put up something that is going to get him a little more money, because there is no doubt among the average grower to-day that we have been selling all the time what constitutes a No. 1 potato—17/8 in. And to actually, as our worthy secretary has said, vote against it, possibly might be wrong. Would it not be good policy to advise or recommend the adoption of grading instead of putting it along compulsory lines, and try and encourage the growing of potatoes that will grade No. 1. That was the recommendation of the Lambton Growers' Co-operative Association.

C. W. WAID: Your secretary in writing me to address this organization, asked me if I would talk upon the subject of potato grading. I did not realize at that time that this was so important a matter with you. It so happens I have had a great deal of experience in connection with the enforcement of this rule in the United States as a war measure. I don't think that we should take time now to go into it at length, but I am sure I can help you out somewhat in giving you the benefit of the experience we have had, and this afternoon rather than showing the slides I should be glad to take time to discuss this matter. There are a great many things that enter into the standardization of varieties and grades. The growers in Michigan last year were so wrought up over the enforcement of this rule that they threatened to hang me because I stood for the grading. They went through the season and they got to the point where there was a good deal of Bolshevistic feeling. This year the same group of men are anxious to grade and since the grades have been declared optional rather than compulsory, they are trying to get measures through which will make the grading, not compulsory, but in a measure so.

G. H. POAD: I have given this matter some thought and while I do not propose to go into detail, there are, to my mind, some very important matters involved in it. I am very glad that the secretary brought up that matter and put it before us as he did. To my mind we must have a standard, then we will eventually come up to it. I believe in everything we must have some ideal which we must seek to reach. What we want is a good potato, and if we have a certain standard, we will try to reach it. I think it is certainly worth considering. As an Association I don't think we should throw it down. We should consider it, and then put up an intelligent proposition to the Government. To both grower and consumer it would be a great benefit eventually.

HY. BROUGHTON: My object in stating as I did that I would vote against the adoption of compulsion in regard to the Act was that I felt as a grower I would like to see some compromise made on those grades. I think they are too high for the vegetable growers who grow early potatoes, but we must consider the consumer as well as ourselves. We have got to do it or the Government will do it for us, and if there is anything done at this meeting I would like to see something done that would help us out a little better and bring the grade down a little lower.

PROF. CROW: I would like to ask Mr. Broughton whether he considers that the lowering of the grade would be beneficial to the consumer in respect to early potatoes? Do you consider that $1\frac{7}{8}$ and $1\frac{3}{4}$ inches are too high from the standpoint of the consumer?

HY. BROUGHTON: No.

A. H. McLENNAN: Would it make any difference if a time limit was set when the grading should go into effect?

HY. BROUGHTON: Yes.

A. H. McLENNAN: Supposing we say that up to the first of September the early potatoes may come in any size at all, and after that you would have a definite standard.



Cauliflowers.

HY. HOUGHTON: There should be a grade from the very start. It is the only way the vegetable grower can be protected with his early crop. You must remember that that early crop of ours is in competition with fine stuff from Virginia.

J. LOCKIE WILSON: Would it be in the interests of the consumer to rush in immature potatoes of a very small size? I think the health of the community should be considered a little.

A MEMBER: Don't you know that 50 per cent. of the early potatoes marketed the 1st of July are grown on sandy land that will not grow a large potato even if it is left there until the first of November?

J. LOCKIE WILSON: I have grown some pretty big ones on sandy land myself.

W. J. COOKE: This standardization will create a demand for our Ontario potatoes, but will there be any Ontario potatoes there to fill the demand. Of course it is all right for the commercial grower, because he is scientific; but the

bulk of Ontario potatoes are produced by farmers and the small grower, who are not scientific, and if they are forced out of the market by this grading—and they will be—they will not try to grow potatoes to meet that grade. There will be fewer potatoes on the market for the Ontario consumer, and they will eventually get potatoes from further east. From our standpoint as vegetable growers, possibly it would be all right, because we would endeavor to grow potatoes to the standard and in so doing we will produce larger crops; but the bulk of the product comes from Ontario farmers where they are not grown under ideal conditions. And rather than become scientific—which is against the farmer's psychology—he will go out of the market.

PHIL. MAY, Tecumseh: In our district we can't produce a potato to come to that standard. We get one large potato and right alongside of it a small one.

F. F. REEVES: My opinion is the same as Mr. Cooke's, that a whole lot of them will have to drop out. Personally I am against the standardization. By the time we dig our potatoes, if you take land that averages \$500 or \$600 an acre, you can readily realize that you have got to grow more than one crop of potatoes on it. The potatoes are dug early, before they are matured, and consequently they are not up to the standard. In the Toronto market we sell everything. They are not all thrown into one box. Our small potatoes here in Toronto are sold at a lower price than the big ones. It has been my experience where I could have sold on a market day twice the amount of small potatoes I had with me. If you bar the sale of these potatoes by grading, I will be against it.

T. D. DOCKRAY: Last year I came before you as a vegetable grower in a very small way, on a vacant lot in Toronto, and was called upon as president of the Ontario Horticultural Association to speak. This year I had hoped I could come to this Convention simply to learn something more about vegetable growing, and here I am again as president of the Ontario Horticultural Association, simply because I am an overholding president. Our Convention was called off in November, at which I had hoped my successor would be elected. We are going to hold it on February 5th, 6th and 7th. This is one occasion where we can invite you to our Convention, and I extend to you a most cordial invitation to attend it, where a number of subjects will be taken up which will be interesting to all of you, such as the general improvement of home premises and home life in this Province. The question you have just discussed here is one that interests me, simply from the fact that it is a regulation put on by the Dominion Government, and possibly it would be as well to thoroughly understand how compulsory they are going to make this. In Toronto when we buy apples, if we buy them in a box, we make the people we buy them from label them No. 1 or No. 2. We just buy their potatoes. I feel, from the standpoint of people who buy things in the stores of Toronto at least, if we could simply telephone for either No. 1 or No. 2 potatoes, I am sure we would be ready to pay a little better price to make sure of the better quality, to save us going down and picking over a few bags of potatoes in the shop, to see if they are sliced in half, decayed at the ends, and if they are fair size.

C. W. WAID: It occurs to me that it might be opportune to extend to you an invitation to attend what we hope will be the annual meeting at Detroit. The date has not been set as yet, and it has not been absolutely determined that we will hold the meeting at that place. But I am quite sure it will be one of the most convenient points for you to reach, it seems to me that we might have a larger delegation than we have ever had before at this meeting. There are a

good many things of interest in and about Detroit that most of you will be pleased to see, and in view of the fact that no Convention was held last year it will be much more largely attended and more things of interest will be discussed this year. So I extend to you a cordial invitation to attend this Convention in as large numbers as you possibly can.

SUCCESSFUL CO-OPERATION AMONG VEGETABLE GROWERS.

J. W. SMITH, SARNIA.

The subject that I have been requested to talk to you about, is one that I have been very much interested in for quite a number of years, not so much from my own personal stake or interests as a vegetable grower, but because the Township of Sarnia in the County of Lambton where I live, has been specializing on vegetable production for a good many years.

Owing to our location at the foot of Lake Huron, and on account of good steamship service that we have with the cities north of us on Lake Superior, our locality has been the natural market to supply them with a large percentage of their requirements of vegetables and fruits, and as a result of this natural market, our production of both vegetables and fruits has increased to such an extent that we now find that not only do we produce ample supplies for these up-lake markets, but we are producing and shipping vegetables in car lots to points as far east as the cities of Quebec, Montreal and Ottawa, besides markets nearer home, such as Toronto, Hamilton, London, Guelph, Stratford, and all distributing centres in Northern Ontario, such as North Bay, Sudbury, Sault Ste. Marie, etc.

This increased production has been the result of, and brought about by "A Successful Co-operative Marketing Organization," and I firmly believe that to our marketing organization is largely due the credit for our increased production.

This introduction brings me back to my subject "Successful Co-operation Amongst Vegetable Growers." This, to my mind, can best be illustrated by the history of our Association known as "The Lambton Growers' Co-operative Association," with headquarters at Sarnia.

To give you our history so that you will appreciate fully what "co-operation" has done for us, I would need to tell you what conditions in the vegetable industry were, at the time we formed what afterwards became—The Lambton Growers' Co-operative Association—and for fear that you may think that I am not conversant with matters and are giving you hearsay, I am proud to tell you that I have been occupying the president's chair in our organization ever since its initial start in 1910, which means that its business has been open to me for nine years.

What were conditions with us in the spring of 1910? Up to this time, our products had been reaching our up-lake markets through several channels. Some of our largest growers were marketing their own products, and several buyers were buying or having consigned to them for sale, quite a percentage of Sarnia Township's production, and the result of the season's business of 1909 was so bad, that a good many of our growers were considering the question of ceasing to grow vegetables, because of the poor financial results obtained.

This state of affairs was, of course, reflected in our land values, and the finest garden lands in our township were to be had, in some instances, at what we now would consider less than one-half their value.

In the spring of 1910, some thirty-five to forty of our best growers, decided to get together on what could really be called a "Co-operative Selling Basis," and we decided to place the selling of our products in the hands of one firm, on a commission basis. This proved satisfactory, and we had a successful year.

In the winter of 1910-1911, we became incorporated as a Co-operative Association without share capital, and appointed Mr. George French as sales manager, as he had really been acting in this capacity the first year.

Now, I am talking to men who have had to do with similar organizations as ours, throughout Ontario, and I feel sure that they will recognize that, when we have retained ninety per cent. of our charter members, and have added to same year by year, we have discovered something new in co-operative methods to attain this result.

We have, and what we have discovered is this, that an institution of this kind wants one manager, and one manager only. And that manager should not be



Cabbage Patch.

a producer. We have a Board of Directors who are consulted by our manager, on matters vital to our Association, and to whom any individual member of our organization can appeal, and does appeal, provided he thinks he has any cause of complaint, and said complaint is reported to our manager, and an explanation requested, but our Board of Directors has always taken the position that the interests of our Association as a whole, are more vitally important than the interests of any one member, and we have insisted upon the recognition of this fact, regardless of the standing in our Association of any individual grower in it.

True, the insistence upon this point, has at times, cost us the loss of some member, but no man is of any value to an organization of this kind who is not prepared to work co-operatively in its best interests.

All men are more or less inclined to be considering their private interests, but our management has always, without fear or favor, insisted upon every member

being accorded the same absolutely square deal, and while occasionally losses in membership have resulted from this, we feel that as an association, we are gaining ground every year, because no favors are accorded anyone, and every man's goods have to stand on their merits.

As an organization, we have for years, purchased our supplies, or at least the bulk of same, as an association, and this has been the means of saving our membership a good deal of money. Through our manager, our members have at times, been accorded conditions in connection with their purchases of supplies, particularly in their requirements for seed, that have been of marked advantage to them, and these advantages they are not slow to recognize and make use of.

Another feature of our co-operative work is, what we have made a specialty of ever since our organization, namely, "Standardizing our Product."

As an illustration—when we first began to do business, we, like every other vegetable growing section, were growing almost every variety of potato known to the trade. Within two years, we had reduced our variety list to three varieties, and to-day we grow practically three varieties only, Early Ohio, Irish Cobbler and Green Mountain.

Within the last year, I believe, our Department of Agriculture for Ontario, decided to recommend "Irish Cobblers" very strongly for Ontario. Our Association has, for over five years, been growing at least eighty per cent. of Irish Cobblers, leaving twenty per cent. for balance of varieties. We are carrying this same principle wherever possible throughout our whole business.

We try to learn what the trade demands, and then try to fill the demand.

One other feature we specialize on, and that is "service."

When an order is booked for a car of vegetables to be shipped in twenty-four hours, it is shipped on time. Our customers have learned that we do not disappoint them, and that makes doing business with us very satisfactory, and frequently results in our Association getting business at even more than prevailing market prices, on account of service.

What has our Co-operative Association meant to our growers, outside of the money received for crops sold?

Firstly, it has given us more of the community spirit, based on the greatest good to the greatest number. Secondly, it has meant that land values to-day in Sarnia Township are more than double what they were before this organization got into business, because we have established the fact that we have the best market in Ontario for our products.

As an illustration, notwithstanding the organized campaign put on all over the Province of Ontario by the Department of Agriculture for increased vegetable production in 1918, we have been able to sell our output to good advantage.

I noticed Toronto's market quotation on vegetables on the first of January, and let me tell you that we wound up our vegetable season with practically everything sold, at prices that meant double Toronto prices to our growers, and the crop was handled direct from field to car, not requiring any second handling.

There is one other feature I must mention in connection with our organization, and that is, our system of accounts. We believe that we have a system almost proof against errors, and a system that enables any individual grower to get a report on his entire season's business at any time in a few minutes.

Our system was gone over by F. C. Hart, Director of Co-operation in the Department of Agriculture, some two or three years ago, and he then pronounced it the best system he had seen. It is better now than it was then.

To my mind, Co-operative marketing is the only sane, sensible way to do business, but it requires producers who are prepared to sink their small personal interests and get together as a community, and in the end, every individual producer is benefitted.

It is too bad that competition should develop between producers in any one locality, because nothing is gained by it.

For instance, Leamington has two or three Vegetable Associations. They are competing for business, one against another. This only means losses in values for the producers. One association at that point could well handle their entire output and maintain values.

The same is true in Lambton, and it can be demonstrated beyond question, that the last nine years has cost the producers in Lambton losses in values running into the thousands of dollars every year, because of this senseless competition.

Could it be proved that competition amongst producers increased business, there might be something said for it; but it does not, and the losses in value fall on the producers. This fact we have urged repeatedly, but we have not been able to persuade all our growers to see things as we do, but time is on our side.

The best member we have in our Association to-day is the man who has done business through other channels and has come over to us. Then our methods appeal to him and he sticks. It is true we occasionally lose a member, but when the reason is probed we invariably have found that the fault has not been our Association's but because we consider our Association's welfare first.

It sometimes happens we have a member who considers himself entitled to some preference, probably desiring an unusual percentage of orders when prices are high, but refusing to do his share when prices are not so satisfactory. This man ceases to be a member, because he cannot dictate our manager's policy; but the loss is his, not ours.

As an evidence that our affairs run smoothly, we to-day are employing the same manager that we began our organization with. Through the thoroughly businesslike management he has given us, we have been able to market our products at all times, and often it has been demonstrated that we have a market for produce when other institutions have been unable to move theirs, and our manager can report at the end of our ninth year, after handling hundreds of thousands of dollars worth of produce for our Association, that he has not lost one dollar through bad accounts in this nine years. Some record!

Should there be any question as to the value of co-operation to the producer in the vegetable business, which we claim there is not, it is clearly demonstrable that co-operation pays by the experience of the apple man in Norfolk County. The Norfolk Apple Association not only has proven itself to be the right method to do business by in apples, but has done more to advertise Norfolk County to outsiders than any other agency in the county, and advertising pays in more ways than one.

Lambton County is proud to boast that it has as fine peach land as there is in our fair Province. Lambton County is known as the home of the big red apples. And last, but not least, Lambton County has proven through her vegetable associations, that her vegetable lands, while comparatively low in price as compared with land in other sections in Ontario, have an earning power fully equal to lands double and treble their value in other portions of this fair Province of ours.

J. LOCKIE WILSON: We have had very many fine addresses on Co-operation but never one so good as the one we have just heard, well put in every way and it should be of vital importance to every member of our Association. We must hang together or separately. I think we had better hang together. And it is up to our members who are here to-day to go out from this convention carrying back to their branches the idea of progress and co-operation. The period of the individualist is past. The community interest, after all, is the great thing we have to aspire to. And I believe if we go out from this convention imbued with the spirit of this address that we will increase our membership a hundredfold. Many of our branches that are standing still should either go out of business or go forward. You who are here from your local branches will go back to them imbued with the proper spirit, if you will follow the lead of Mr. Smith, who has proved that vegetable growers can make a great success along the line of co-operation.

W. S. EBORALL: This question of co-operation is of vital importance. When I get back home I think we will be able to branch out and do something. My advice to every member of this Convention is that he should get to work on this question. Get members. It is important that we should have a large number of men to back us up.

G. H. POAD: I think the reason we have silence on this question is because we all approve. I for one endorse what has been said by Mr. Smith and commented upon by the secretary. To my mind, this is a very vital question. If we cannot do anything else we can express our appreciation of the paper that has been read and the suggestions that have been made by Mr. Smith, and we can go back with fresh determination to do all in our power to co-operate for the general good. I believe that we will come to see this fact, that gardening in general must be run on business principles, and it is no longer a question of boosting prices. We hear a great deal to-day with reference to having fixed prices. I have never been a very great advocate of that in any business, but I believe that if this thing is worked properly it will adjust itself. But we must work our individual branches on business principles. We must have some business about us and business men at the head. It was a great pleasure to me to have heard that paper. It was most inspiring.

INSIDE TOMATO GROWING.

J. J. DAVIS, LONDON.

The first thing to take into consideration is what variety is best if a man wants to grow tomatoes under glass. There are a great many good varieties of tomatoes for indoor culture. Two of the best are Livingstone's Globe and Bonnie Best. Then there are other and newer varieties—smaller English varieties which have their merits along different lines. The last two seasons I have grown Livingstone's Globe as an indoor tomato and I have been very well pleased with the success that it has given me.

Having established what variety you intend growing the next thing is to get them as early in the season as you possibly can, and that of course depends largely upon what time your former crop (which is generally lettuce) will come off. For that reason I like to grow my plants in pots, then I can hold them until the ground is ready for their occupation. A plant put in a good sized pot can

be held two or three weeks longer perhaps than you want to, by looking after them. The idea that I aim at is to get as large a plant as I possibly can by the time I put it in the ground—a good large plant with a good large root—that means, of course, a good large pot. If the plant is ready to bloom or is in bloom, so much the better from my point of view.

Then the question of fertilizing and of feeding: If you are going to grow a large crop of anything on a small piece of ground it naturally follows that you must put some feed there to produce the crop. But it is a mistake to put too much fertilizer and manure, more especially nitrogen, in the soil for tomatoes at the beginning of their growth. It generally has a tendency to make them grow too rapidly at the start and you get a long soft plant. A plant that grows too fast, gets up to the top of the stakes or the trellis before it sets enough bunches of fruit. You can get them up there, if you don't look after them, with about six or seven trusses on where with slower growth you can get eight.



Greenhouse Tomatoes.

My practice is not to put the fertilizer there until the plants have been in for some time and have begun to set fruit, and naturally the setting of the fruit then holds the plant from running up too fast. Of course, a tomato plant, if you want a large crop, should not at any stage lack for plenty of plant food.

I found out that most of the money that is made from an inside crop of tomatoes comes off the first three sets. You can get six, seven or eight, or you can let them go up and they will make ten or twelve trusses, but the money comes off about the first three; perhaps you might include the fourth, but you generally do not get nearly so much money per pound as you do on the first three.

A MEMBER: Are you speaking of the spring crop?

J. J. DAVIS: I only grow one crop of tomatoes inside during the year and that is during the spring.

THE SAME MEMBER: It would pay you to grow a fall crop.

J. J. DAVIS: I have had no experience along that line, but I know some who have. I have a near neighbor who says there is positively no money in fall crops, and he has quit them. I am one of those who are willing to profit by another

man's experience if I can. I think in this latitude, and with the high price of coal and the amount you have to use up in producing a fall crop of indoor tomatoes, you could be better employed at something else.

To get a good set of the first three bunches, was a problem that I did not really solve for some years and it was my own fault, too, because our good friend, Mr. McLennan, had told us how to do it, but it seemed to me to be too tedious a job. But finally I came to it. That is pollenizing by a spoon. Now it seems a tremendous job for a man to go over his crop of tomatoes and feed them like a baby with a spoon, so to speak, but that is what it amounts to. The conditions for setting fruit are not always the best, in fact often times the conditions are the worst, and if you can do anything to have them set fruit, then it will pay you. The best method I have found is to take a spoon, crook your finger, and hit the blossom, and the pollen hits into the spoon. There may be other methods, but with me others have not worked out so well. I also took a little wool on a stick, thinking it would be like a bumble-bee's legs. But the difficulty was I did not know whether I had pollen or not. There was a little discoloration on the wool which I thought was pollen, whereas it was from the blossom. I have known my employees and myself to work for a whole day without results. If you take a spoon and find you don't get the pollen you can simply desist, waiting until another day when perhaps the sun is a little warmer and pollen sheds. I got sets of two lbs. and over on the bottom bunch. When you come to figure out that those tomatoes were sold at 30 cents to 35 cents a pound you can see there is money in it. I keep that spoon business going on until about the third truss. Then I got interested in something else. By that time there was a lot of outdoor work to be done. I got busy at something else and I found I did not make nearly so much money on the third and fourth bunches. The last two years' experience has shown me that I ought to keep on a little longer. I have an idea if a person took a pair of bellows and went through giving them a good big puff of wind, possibly one could accomplish the desired end that way, because wind has a great deal to do with the fertilizing of blossoms out of doors. Pollen is carried by the wind. At any rate, by some means or other, natural or artificial, you have got to get that pollen distributed. No pollen no tomatoes. That seems to be the outcome of it.

I had a little experience out of the ordinary this year with trimming. My method has always been after plants get up two or three feet high, to take off the bottom leaves, trimming the whole lot off up to the first bunch, and then cut off each alternating leaf up to the top. This is a thing that requires judgment, because the leaves are the protection of the plant, and if you go cutting away leaves too early, before your plant gets enough strength and root developement, you are going to weaken your plants. After they get established it does not matter so much at all. You can seem to cut them pretty hard without hurting the plant much. But you must not hurt your plant by doing it too soon.

The last two years we have been troubled a great deal with disease in the greenhouse tomatoes—leaf spot we call it—and eventually they get it, sooner or later, oftener sooner than later. It is a very bad disease, and until last year we did not know anything that would combat it, and we tried to burn sulphur and found it worked very well. We were not persistent enough to find out whether it really was a sure cure or not, but we thought it was—that was the year before last. This last year we got after it in real good earnest, and proved to our own satisfaction that the disease can be absolutely controlled with sulphur if you go at it often enough. Of course sulphur dioxide gas is a bad thing for plants. It will kill

plants as well as disease, but it will not kill plants as readily as disease. But you have to keep at this treatment. Now I found that in continually going over the thing with this gas, we burnt some leaves more or less, but it did not hurt them. It simply meant when you got up that high, if we burnt a quarter of a leaf off we simply had that much less to cut off.

Another experience I had this year was: I always cut the tomatoes off when they got up to the top of the stakes. I have always done that as a matter of course because other people before me did it. But I could never see any particular advantage in cutting the plants off for this reason, that I have seen over and over again in the course of growing tomatoes that sometimes we don't use stakes, we just use stringers, and twist them around the string. A plant has been missed and it gets a long growth. And some men go at it not very carefully, and they twist the head off and that ends that plant's career, so far as growing up is concerned. And I have noticed that the tomatoes do not ripen any quicker or develop any more than those that go on up. This year I was short of help and they got away up as high as I could reach and I was very busy. I would like to have cut their heads off but I did not have time and I let them go. Some of those vines got 13 and 14 feet long, and they started setting fruit, and when I left home and came up here to the National Exhibition on the 28th of August we were still picking fruit off these greenhouse tomatoes. Other years we were through long before that time. Last year seeing it was cold in September, they sold very well and it worked allright. Tomatoes fetched a pretty good price last season, no matter whether you got them inside or outside. Still I am not recommending that a man should let his plants go that way, and I think perhaps it may have a tendency to hold back the ripening of his crop more or less if they have a very vigorous growth.

As regards combating this leaf disease, when I left home on the 28th of August my vines were as green as leeks. So that proves you can get away from that disease.

A MEMBER: How do you go about it?

J. J. DAVIS: Take a little sulphur, according to the air space in the greenhouse. We take a little paper and roll it up into a ball, drop sulphur on it and set fire to the paper, and take it through the house on a shovel. If you do this your gas is distributed all over the house—it is constantly being diluted with fresh air, and there is never too much gas at one point. Scatter a little more sulphur on it as you go along. Simple and easy, but it requires care and it requires patience.

T. D. DOCKRAY: How long do you notice the smell of the gas, about twenty minutes?

J. J. DAVIS: Longer than that. We generally do it the last thing at night. My man this summer figured it was about a three-minute job, and he felt he would sooner do it every night. He certainly kept it in first-class condition.

A MEMBER: Do you think dry sulphur scattered through the house would have the same effect?

J. J. DAVIS: No. In the one case you have simply sulphur. In the other you have sulphur dioxide gas, which is a very irritant poison.

A MEMBER: The reason I asked that question is that I have used sulphur for mildew and it had a good effect.

J. J. DAVIS: We used to have an apparatus—we had a little coal-oil stove and evaporated the sulphur. But it used considerable coal-oil. This other method is so simple. It hardly costs anything, and the whole operation only takes three or four minutes.

Another new departure, in growing tomatoes last year was that I grew lettuce between the rows, in the spring. I never did that before. I thought first I might never do it again, because the lettuce has a tendency to run up the tomato plants and run the first set far up from the ground. But seeing that I got as good a crop of tomatoes both in weight and price as I ever got in my life, and I got about \$178 worth of lettuce, and also grew all my cabbage plants in between, and lettuce plants for the houses, which take about 22,000 plants,—and that I got as good satisfaction from the tomatoes as I ever got before, I shall be inclined to try it again. It is quite a long while from the time you put out the tomato plants before they really occupy all the ground.

A MEMBER: How many times do you fertilize tomato soil?

J. J. DAVIS: Generally only once. Two or three years ago, when I used nitrate of soda, I would give them a small amount two or perhaps three times, according to the way they were doing. Now that nitrate of soda is out of the question and I have been using phosphoric acid, I give them one good liberal dose and let them go at that.

A MEMBER: Do you prefer nitrate to phosphoric?

J. J. DAVIS: I got good satisfaction from both. It is just a question of what you have been putting in your house previously. If you have enough nitrogen there to carry the crops through, you don't need any more. But if you have not it is good to use a little nitrate of soda. But I find that phosphoric acid is an excellent thing for tomatoes.

MR. SMITH told of an acquaintance who used Bordeaux mixture for blight on the plant.

W. J. COOKE: Bordeaux Mixture is good for that.

J. J. DAVIS: We have not the proper apparatus for getting it underneath the leaf.

J. W. SMITH: This man uses Bordeaux Mixture on them, keeps them covered, and he says it protects the plant from disease and blight during the growing season.

J. J. DAVIS: This method of using the sulphur is so simple and so inexpensive. You could do it ten or fifteen times for the price of one Bordeaux mixture.

W. J. COOKE: You could not use that in the field?

J. J. DAVIS: No.

A MEMBER: At what temperature do you keep your house at night, when you plant tomatoes and lettuce together?

J. J. DAVIS: We keep a temperature suitable for the lettuce and leave the tomatoes to take care of themselves. While the plants are in flats, my pipes are overhead, and by putting them up there in flats or by putting a board up and standing the pots on there, their feet are warm even if the heads are cool.

VEGETABLE BREEDING.

PROF. J. W. CROW, PROFESSOR OF HORTICULTURE, O. A. C., GUELPH.

It was made obvious in the early days of the war that, if home-grown vegetable seed were to prove satisfactory, stocks of seed would require to be bred up and vastly improved with respect to purity. Many (perhaps most), of our vegetable varieties are more or less impure at best and under war conditions of seed growing the purity of stocks has deteriorated very seriously. The Department of

Horticulture at the Ontario Agricultural College began in the Spring of 1915 the work of purifying strains of important vegetable varieties. Considerable progress has been made and some highly improved strains have been developed. Limited quantities of choice stock seed are available to bona fide seed growers in Ontario, and, through Mr. A. McMeans, Seed Specialist of the Dominion Seed Division, stock seed of several varieties is being placed with seed growers for increase under contract. The increase thus obtained will be offered for sale to market gardeners. We are anxious to get in touch with growers of vegetable seed in the Province of Ontario or with market gardeners who are interested in high class stocks. The following is a list of the varieties of vegetables with which this careful breeding



Vegetable Seed Growing in C. A. C. Garden.

work is being carried on. We shall be glad to send trial packets of any of these sorts for testing purposes so long as available supplies will permit.

Celery	Paris Golden Self-blanching
Beet....	Detroit Dark Red
Carrot	Chantenay
Cabbage.....	Jersey Wakefield
“	Tender Eight-weeks
“	Glory of Enkhuizen
Onion.....	Southport Yellow Globe
“	Danvers Yellow Globe
Parsnip	Hollow Crown
Spinach	Long Standing
Lettuce	Grand Rapids
“	Wayahead

At Guelph we are not growing commercial seed for sale, and while we have a little of that class of material, that is not what we started to do. We aim to produce strictly high class seed that can, if desired, be placed in the hands of

commercial seed growers who will want to grow seed commercially. That is, we are growing what seedsmen call "stock seed." We are obtaining a fair measure of success, and, while our work is still under way, we have with some varieties developed already what I consider strictly high class strains. A few growers have tested out some of the seed we have sent out from Guelph, and Mr. Reeves could tell you what he thinks of the lettuce seed we have sent him for trial. He has requested me for more.

F. F. REEVES: It is the best lettuce seed I can get anywhere.

PROF. CROW: To give due credit where it belongs, that lettuce seed came from Grand Rapids lettuce and the source was from the U. S. Department at Washington. Mr. Shoemaker of the Department was good enough to let us have some.

We have developed strains of our own in Paris Golden Celery, strains that are high class and which will compare very favorably with anything that can be procured on the market anywhere. We have developed a strain from pure Paris Golden parentage, but which is a strictly dark green winter celery, a fine large heavy bunch with a broad bottom, large stalks, and splendid quality, which has been tested out at Vineland and a number of other places. We sent some seed down to the experimental station at New Jersey last spring, and had from them a most encouraging report concerning our strains of celery. We have progressed to a point of having on hand now small quantities of strictly choice seed of these varieties, Paris Golden Celery, Grand Rapids Lettuce, Wayahead Lettuce, Jersey Wakefield Cabbage, and Long Standing Spinach, which for long standing I consider better than anything you can get anywhere. This variety of spinach will stand for a long time without going to seed. That is one of the big contracts in the garden. We have also limited amounts of stock seed of two varieties of Cabbage, one Extra Early, and the Copenhagen variety which we are placing—or rather we are asking Mr. McMeans to place under contract stock varieties to be increased. When that is increased in quantity it will be offered to vegetable growers.

We are working also with the Detroit Red Beet, Southport Yellow Globe Onion, and the Chantenay Carrot, but we have not reached even a stock seed stage with those. When we do, which will be in about a year, we shall have some strictly high class material.

If any of you are interested, I have with me sample packets of Spinach of the long-standing type, several strains of our Paris Golden Celery and also Wayahead Lettuce and Grand Rapids, and if you are interested in taking a sample package for trial, I shall be glad to let you have one.

Motion pictures of the work done at Guelph were shown by Professor Crow.

EXPERIMENTS IN VEGETABLE SEED PRODUCTION.

O. J. ROBB, VINELAND STATION.

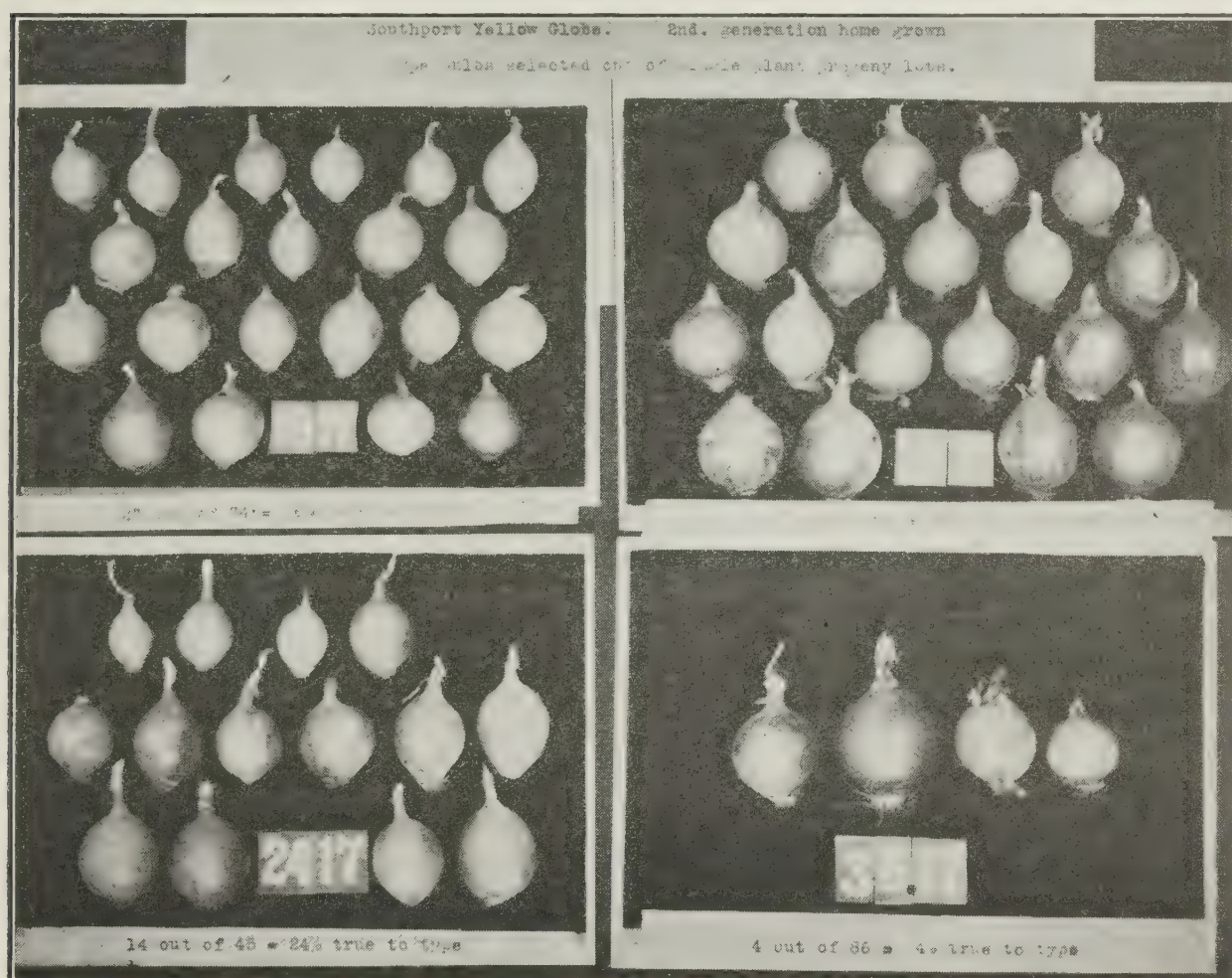
During the past four years we have grown various kinds of vegetable seeds.

Most of our attention is devoted to the more easily grown ones such as Onions, Beets, Carrots, but successful crops of Cabbage, Cauliflower, Celery, Lettuce, Radish, Salsify and Turnips have been produced.

The primary object of our work in producing seed was to find out all we could about it. We wanted to know if our climate was suitable, if our soil would give

a large enough yield; what kind of vegetable seed we could grow at a profit, and finally we wanted to know if our home grown seed was equal in quality to seed obtained from the seed houses.

The climate in our district is very favorable for seed production in that extremes are seldom met with. We are able to get the roots and bulbs out early in the spring, which means a great deal in the production of seed especially of onions, beets, carrots, turnips, cabbage and celery. I would like to emphasize this point of earliness. As most of these plants are partly frost hardy it is comparatively safe to set them out as soon as soil is put in shape. Our season is long and usually favorable for the setting and maturing of good plump seed. We have never had a failure on any crop in four seasons.



Experiments at O. A. C., Gue.ph.

We have used irrigation on onions, beets and carrots, and believe that it is unnecessary if the soil is worked properly. Of course, in an abnormally dry season, irrigation would be a great help.

We have found that it is comparatively easy to grow seed of onions, beets, carrots, parsnips, radish and cabbage, the only difficulty being found in storing the roots and bulbs over winter.

With cauliflower and celery, a greenhouse is almost a necessity, but a well protected cold frame could be made to answer the purpose.

With respect to onions, we have found that the large bulbs produced an average of 6.25 seed heads while medium sized bulbs gave an average of 3.5 seed heads and small bulbs produced an average of 2.7 seed heads. This has a great effect on the amount of seed produced per acre.

During the past season we selected several plants of seed onions, some with six seed heads, some with five, four, three and two. The seed from each plant was kept separate and rubbed out by hand to determine the yield per plant as well as per seed head.

The plants with six seed heads gave much the heaviest yields, being 1¾ oz. per plant while the plants with two seed balls were the lowest being ½ oz. per plant.

In fact the average over the lot was just ¼ of an oz. of seed per seed ball. Thus on the number of seed balls or stalks depends the yield of seed.

With another lot threshed by machinery, the number of plants and heads of which were known the yield per plant averaged only .64 oz. while the average per seed head was .18 oz. The average number of heads per bulb was 3.5 in this lot.

These last figures are more nearly applicable to field conditions, for in the first instance only good sized, well headed plants were observed.

The size of the root is not as important with beets, carrots and turnips; in fact, for the sake of storage small ones are recommended for use in seed production, but they should not be so small that the type desired cannot be clearly defined. It is the constant grading and roguing out of the poor specimens that keeps the seed up to the standard.

During the past we have sent out samples of seed to various growers in many parts of the province and judging from reports our seed has been very successful.

We have come to rely on it almost entirely for our crops at the Station and I believe we are improving our strains, especially of onions, beets and carrots.

We are making a fresh start in the production of celery, cauliflower and cabbage seed from a few selected plants.

Regarding the yields of seed per plant we have records of only a few, but indications are that all varieties will produce a fair profit. Our yields are figured out per plant and usually the plants are well spaced. This must be allowed for in figuring yields per acre. We plant beets, carrots, onions and other roots in rows 4 ft. apart and 18 inches in the row.

The complete list of yields are as follows:

<i>Turnip:</i>		
Large quantity	2.24 oz	per plant.
Small number of selected plants	8.20	"
<i>Parsnip:</i>		
Large quantity	1.12	"
Small number of selected plants	3.50	"
<i>Onions:</i>		
Large quantity .....	.64	"
Small number of selected plants	1.00	"
<i>Carrots:</i>		
Large quantity .....	.65	"
Small number of selected plants .....	.8	"
<i>Beet:</i>		
Large quantity	2.93	"

EXPERIMENTS IN GROWING SEEDS.

GEO. BRIDGER, SARNIA.

We have been experimenting for four years, having started in 1915 with beets, carrots and parsnips. We made a success of it so we selected some of the best stock, fair size, good shape and color for 1916, and we planted that for seed, and we had the best lot of beet, parsnip and carrot seed we had ever grown. In 1916 we tried turnips, cabbage, and radishes. We were very successful with these, and had better results than from anything we had ever bought.

We grew some Onion seed in 1916, and had success, and more in 1917. At the present time I have some Yellow Globe Danvers in my cellar to plant in the spring, which would equal anything Prof. Crow showed on the screen, and with radishes the same way. We have tried to grow some radish seed, and just left some in the bed before transplanting it.

We have got a better strain of white turnip seed than anything we have ever bought. With Parsnips, worms bothered us for a time, but last year as soon as we saw a web on them we mixed Paris Green the same as for potatoes and applied it with a syringe and they did not bother us any more. In 1917 we tried dry Paris Green on the web with very poor results, but when we put it on with a syringe it was most successful.

We planted beets, carrots, turnips from 20 to 24 inches apart each way, the parsnips a little further apart. Onions and radishes we planted in rows about 24 inches apart and about 6 inches in the row, Cabbage about 3 feet apart each way, and Celery about 2 feet. With Cabbage the first year we had nearly a failure. After they got up to a fair sized stalk they dropped down and we found that there was rot in the cabbage. We had to tread the earth around to fill in about the roots, and after we did that we had no more trouble.

We have grown a pound of seed on about 30 onions and about 20 carrots. That is small to what Prof. Crow obtained, but this was outside without special attention. About six beets produced a pound of seed, and four parsnips and about four heads of celery did the same. I cannot give you any idea of the radish because some of the plants when you pull them up will be heavily leafed and not much seed, and some will have hardly any leaf and lots of seed.

In regard to the planting of them: We plant the carrots, beets, parsnips, and turnips, putting an inch of earth over the crown. When they strike root they are naturally lifted up a little. When we first started Mr. McMeans came and gave us some good advice. The first year we put the beets in sand, but we did not put them down deep enough. We tried them on lower land and we did not have as good seed as we did on the sand. In 1917 we put some on sand and some on low land. We had better seed on the sand than on the lower land, but not so much of it. We planted it all at one time, and in the sand it started to grow about two weeks before it did on the lower land. Last summer we had all our seed on the sand, and that is where we intend to grow it in the future.

A MEMBER: How do you clean your Parsnip and Carrot Seed?

GEO. BRIDGER: Last year we got a Clipper Cleaner from Saginaw. I do not think they are made in Canada.

J. J. DAVIS: What is the cost of those?

GEO. BRIDGER: About \$25 or \$26 at Saginaw, but when laid down in Sarnia \$10 or \$12 were added on for duty and express. Now we can clean the seeds up just as nicely as those you get from the seedsman.

In respect to parsnips, in 1915 a neighbor of mine left some in the ground and in 1916 I grew some seed from them, and also in 1917. It was the best seed we ever had. We have not started to grow any cauliflower seed yet, although we have three or four plants put away for next summer.

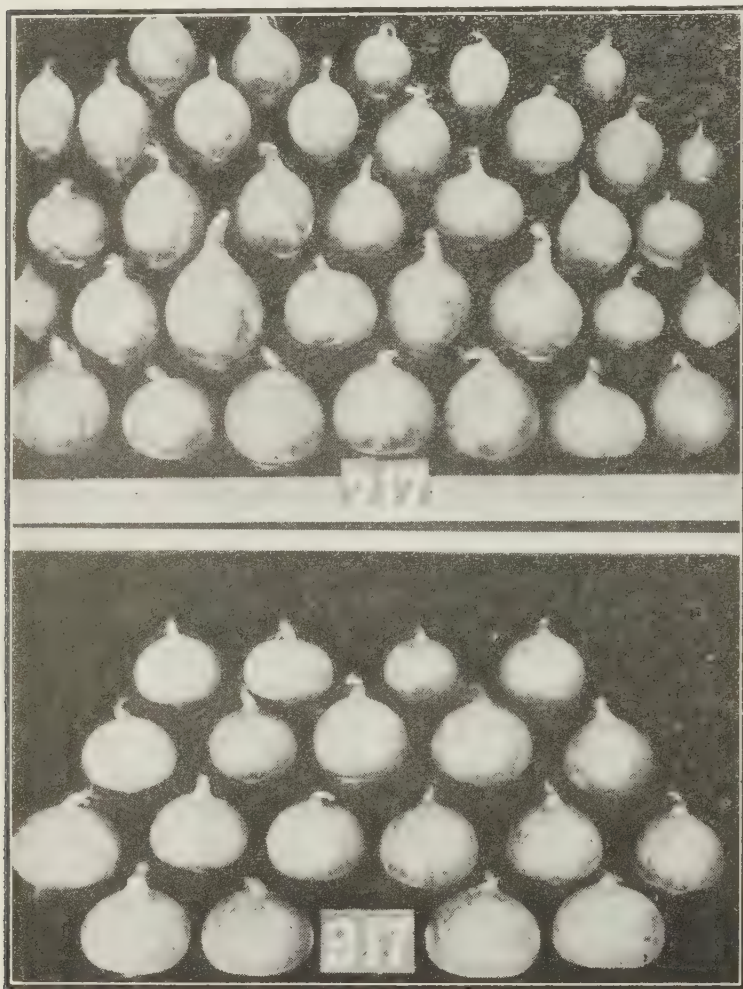
PROF. CROW: We sprayed our parsnips about three days a week and then had to go and pick the worms off with our fingers.

A MEMBER: In addition to the worms I had a good crop of aphids too.

GRADING POTATOES IN THE UNITED STATES.

C. W. WAID, EAST LANSING, MICHIGAN.

I will give you briefly the experience we had during the last year or two in connection with grading of potatoes in the United States. In the first place, before the time of the war the grading of potatoes was confined almost entirely to special sections of the United States. The Maine people were doing considerable grading. In Delaware they were doing more or less and some in Florida. And there were some sections in the west also doing this. There are also individuals throughout the States who are doing grading, some good and some



YELLOW GLOBE DANVERS.

Total progeny of one bulb, self-fertilized.

Note extreme variation.

YELLOW GLOBE DANVERS.

Part of the progeny of one bulb, self-fertilized.

Out of a total of 75 bulbs 27 were selected as desirable for seed purposes; or 36 per cent.

not so good, and we did not have anything in the way of universal grading until after the war started. The men who were doing grading in these various sections seemed to think that they were getting results from it, that they were getting better prices for their products because of it, and, of course, what the grower is interested in is whether the graded stock will pay him better than the ungraded. That is not an easy question to answer, but when we consider it from the standpoint of other products—we might cite oranges as an example of standardization. We know that without standardization of the orange product they never would have been able to reach the profitable stage of production that they have to-day. We can cite the fig or the prune industry as an example of profitable standardization. Coming more closely to things that are similar in this country and the United States, I can mention the standardization of grains and of hay, and, wherever a certain standard of product has been established and adhered to in a large way, it

has resulted in profit to the growers. Do not lose sight of the fact that the grower's interest is also the interest of the consumer, and the consumer's interest is the grower's. The two work together. The consumer is usually interested and willing to pay for a good product, and if the grower is willing to put up that product and gets extra pay for it, they are both benefited thereby. So, generally speaking, we find that standardization of products has proved a financial benefit to the grower, and it is because of that experience that some who were especially interested in the potato crop decided that they would start a uniform method of grading as a war measure.

At the time that this particular grading was established, we had a very large crop in the States, and we knew that the facilities for moving this crop were going to be limited, and so it was a matter of saving shipping, saving waste in transportation, that made the men who had the matter in charge feel that it was a war measure.

I will give you a few illustrations of the waste which occurs in shipping. To those of you who have not had the opportunity of seeing what happens at the receiving points, I would say, I have seen them grading potatoes in the car. I have seen them scoop up potatoes pick out a number and throw them out of the door. Another man was holding the sack. At the same time there was a man waiting with a team. Three men and a team waiting for that grading to be done. At the same time a number of bushels thrown out of the car. Who pays for it? The grower ultimately. The dealer is not going to pay for it. He may do it at the time, but, if he does, he will get it from the grower a little later. So that the grower ultimately pays for that extra cost of grading. And in view of the fact that that system of grading is expensive, those who work or started to work along this line believed that there was some better and cheaper method. And so late in the fall, after the crop had begun to move, there was established this rule as written down, "Potato grades Recommended." Probably most of you have seen the grades which were recommended in this particular pamphlet.

"U.S. Grade No. 1." shall consist of sound potatoes of similar varietal characteristics, which are practically free from dirt or other foreign matter, frost injury, sunburn, second growth, cuts, scab, blight, dry rot, and damage caused by disease, insects, or mechanical means. The minimum diameter of potatoes of the round varieties shall be one and seven-eighths inches, and of potatoes of the long varieties one and three fourths inches. In order to allow for variations incident to commercial grading and handling, five per centum by weight of any such lot may be under the prescribed size, and in addition, three per centum by weight of any such lot may be below the remaining requirements of this grade."

The grading system coming into operation at the time it did, after the crop had begun to move, and also because of the fact that conditions were very unfavorable so far as the new crop was concerned (there was a great deal of frost and the crop was very small in some communities) prices went all to pieces after the grading rule went into effect. This created a condition of dissatisfaction and unrest, which was the worst I have ever seen among farmers. I told you this morning I was threatened to be strung up because I had favored it. As Potato Specialist in the State of Michigan it is my duty to meet the growers throughout the State. I never saw a group of men wrought up as those were last year, and there were some just reasons for their being so. However, the grading rule was put into effect. At first it was made voluntary. It was recommended. They found then in the shipping sections that there would be some men who would not do the

grading and the growers would naturally turn to them. This resulted in the Food Administration not getting the potatoes. So that led to making the grading compulsory. One of the worst features was that the mesh—1-15/16 in. used was square, which would let such a large percentage of potatoes go through. They used the 1-15/16 square mesh as long as they could and most of them put on the 1-15/16 in. round mesh screen, and that was better. But this last year it was changed to 1-7/8 in. round mesh screen. You may think there is little difference between the round and the square mesh. (Mr. Waid illustrated here with a small box in which he had cut both a square and round hole, how potatoes dropped through the square which would not go through the round). Most of the growers felt that the grade was being put up according to the recommendation of the dealers. I don't know what the feeling is between growers and dealers here, but it was none too satisfactory in our part of the country.

This year, however, it has changed over the other way. In the first place, the crop this year is better than it was last so far as size is concerned.

Grading means sizing and sorting, and those two things are distinct. The sizing can be done by machinery, by running them over the machine. Sorting has to be done by hand and is giving us the most trouble at the present time.

In sorting, sunburn and second growth both are considered, but it is surprising how serious sunburn is. I did not realize it although I have worked with potatoes all my life, until we began to look into the proposition of making grades conform to the requirements. That is one of the first things to be considered. The second growth refers to cases where the second growth is so great that it will cause a considerable amount of loss. All of the defects that are grouped together are classed as "Other defects." In inspecting, the Inspectors look for any defect which will cause a considerable amount of loss in the preparation for the table. Three per cent. has been allowed for that, but they have now changed it to six per cent. Five per cent. is allowed for undersizes, but this could be reduced in my opinion. When you get potatoes below 1-7/8 in. in diameter, except those that are used as new potatoes are, you have a very small potato. So it really has resulted in one grade. The aim of the Bureau of Markets was to benefit the grower. Mr. Milburn of Wisconsin is quite firmly of the opinion that one grade is better than two. For some sections I am sure one grade is better. But men in the Florida section want three grades. They want to sell them in very small sizes in the last grade.

It was never a case with us of forcing the growers to do the grading, it was forcing the dealers to do it. Yet I am of the opinion it will not be very long before most of the growers will be willing to come to some form of grading, because they are seeing the thing in a very different light this year. In that connection, I might say there has been organized in Michigan during the last year a very large Co-Operative Selling Organization comprising nearly 6,000 members, all growers. They have 45 local Associations. They are handling something like 4,000 cars per year and they are all just as anxious to do grading as they were anxious not to last year, and they realize it is to their own advantage to do so.

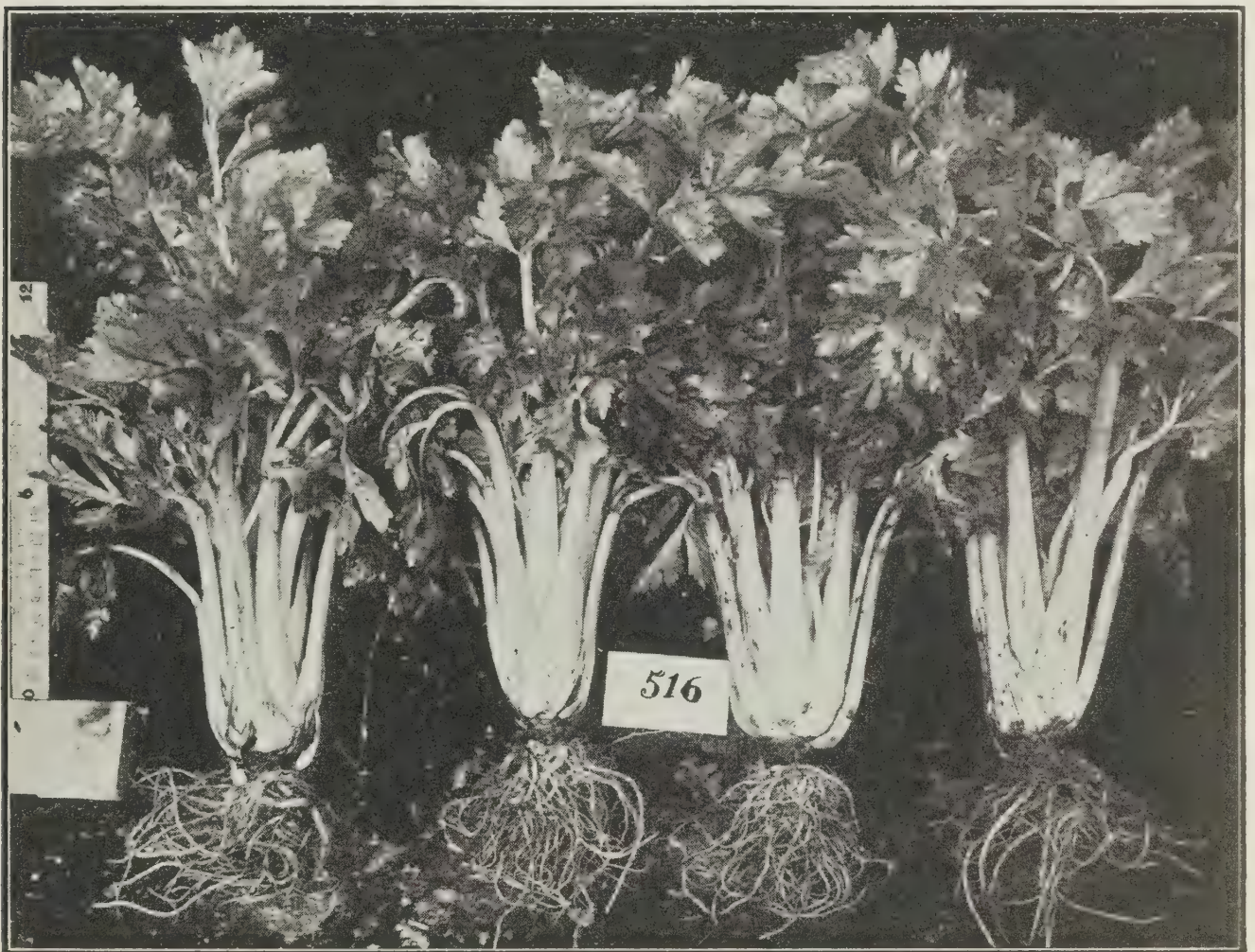
A MEMBER: What has caused the change?

C. W. WAID: One reason is that they do it themselves, and the dealers will not take advantage of them. Another, their cars have been turned down on a declining market, whereas if they had been graded and inspected by the Bureau of Markets' inspectors then the purchaser would have to take them. Now they feel that they can not continue it as a war measure. One thing they are trying to do is to get some means of having every dealer in potatoes licensed so that they can

have some hold on them. Those who have studied the matter realize that it is important to have a universal grade that will be recognized all over the country; that is, when potatoes are transferred from one section to the other. So I am hopeful that we will have a standard grade throughout the country.

Another thing that enters into the question whether they are up to grade or not is the matter of scab. There is a movement on foot to have a by-product made from potatoes over size and under size, and some of the factories have started to take care of potatoes that do not come under the standard grades.

Another thing that has proved quite serious, and has caused more rejections than almost anything, is mechanical injuries followed by dry rot.



Choice strain of Paris Golden, Self-blanching Celery, produced at O. A. C.

A great deal, of course, in the inspection, depends upon the judgment of the inspector. If he is fair minded he can do much better work than where he is inclined to be technical. We have not had a great deal of trouble in that respect, but the increase of culls allowed to 6 per cent. has been made partially to take care of that one weakness.

To speak of a few things that you may be more especially interested in—those of you who do not do a shipping business—sometimes there is a question as to whether or not the consuming public will pay more for a first class grade of potatoes than they will for ordinary ones. I took a little time yesterday afternoon to look into your local markets, and I found that in one store they were selling potatoes of uniform size at \$2.20 a bag, while those of all shapes and colors were selling at \$1.55. Several years ago, in visiting stores in Chicago, I found potatoes from

Idaho which were put up in sacks and running uniform in size, from \$1.00 to \$1.20, while Michigan and Wisconsin stock in the same stores were selling at 65c. a bushel that same year. Those were rather unusual cases, and I realize that the consuming public needs to be educated before they see the difference. But in talking with consumers and men who handle potatoes in a retail way, I have confidence that in the course of time the consuming public will be asking for certain grades of potatoes, and that it will be the grower's opportunity to furnish those grades and he will be paid for this grading.

The Green Mountain and Early Ohio are both classed as "long potatoes," and you can use a screen 1- $\frac{3}{4}$ in. size, because the long potato quite small in diameter, which will go easily through the 1- $\frac{7}{8}$ in. screen, contains more food than the round potato which only just goes through. So they give a preference to the long potatoes so far as the size of the screen is concerned. The reason they included the "Early Ohio" is that in some parts of the West they grow quite long and the "Green Mountain" also does the same.

This question of grading is one that you will find it to your advantage to give careful thought to before you take any definite action either way. It is a big problem, and you have to adjust the grading system to conditions. Your conditions may be so different from ours that our system would not apply to yours, and yet I am satisfied that you will find it to your advantage to have some standard of grades established. You could possibly have some such arrangement as this: If you sell grades 1 or 2, you could also permit growers to sell ungraded stock. That would take care of a situation which might develop in the case of late blight. If you have very much late blight it would be very difficult to get potatoes up to these grades, but, if you were allowed to sell them ungraded, when you had a crop that was very small in size, it would help out.

J. LOCKIE WILSON: What do you recommend for our small early market potatoes, in view of this Act coming into force?

C. W. WAID: So far as maturity is concerned, that would not need to be considered. In fact, I do not consider maturity to any very great extent in connection with the grading at a later period. The skin may be considerably rubbed up and yet they do not consider that at all as being a defect unless the skin has been injured to a considerable extent.

J. LOCKIE WILSON: So that your opinion is that we could endorse the Act along the recommendation made and still the market gardener could sell his early potatoes as ungraded?

C. W. WAID: So far as the size is concerned, you could either allow them to be sold as ungraded stock, or for a second or even third grade, as the Florida people have done.

A MEMBER: A market gardener selling his potatoes ungraded, would be somewhat handicapped with those that are not graded as either No. 1 or No. 2.

C. W. WAID: That would depend a little on whether you would force the retailer to indicate the grade in every instance. So far with us it has not been possible to do it. But if it could be done, it would help out the situation a great deal. But I don't think at the start there would be as much difference between the price received for the ungraded stock and the graded so long as they understood it would take care of that early situation, and the potatoes come into competition with the later crop.

A MEMBER: How are the potatoes graded?

C. W. WAID: The inspectors have sacks of 30 lbs. After the potatoes are weighed they put the ones undersized in one pile and they are put through a screen which lets the smaller ones fall through.

J. LOCKIE WILSON: What would be the difference between the selling price of those small ungraded potatoes for consumption in cities and towns and their feeding value at home?

C. W. WAID: Second grade potatoes have usually sold at from 50 per cent. to 60 per cent. of the price of the first grade so far. That does not hold true of the early crop. In the case of the Florida stock, I have noticed a quotation of \$8 for No. 2 grade and \$10 for No. 1. There is quite a difference in the quality of the Southern and Northern product because the Southern product can be used in small sizes at that time of the year. So far as your early crop is concerned, there would be much less difference in the price than in the later crop.

So far as feeding value is concerned, with the price of feeds as high as they have been lately, potatoes have been of considerable more value than formerly. We used to estimate and value them at 25 cents a bushel but they have been worth considerably more than that the last two years. One comparison that I have seen between potatoes and corn for feeding value is that a bushel of corn is equivalent to four bushels of potatoes. But there are a good many things to be considered in connection with feeding of potatoes. It is not a wise plan to feed them without cooking, because of the fact that you are in danger of getting more scab, as the scab will go back on your land through the manure.

A MEMBER: How are we going to get the dirt off to bring them up to Government standard?

C. W. WAID: Where you are growing them on heavy soil, I know it is hard to clean them. Where you have sandy soil, it is not so hard. But if you have a large quantity of dirt on, and you are going to be forced to live up to that grade, about the only thing to do is to leave them until they are dry enough so that it will knock off.

A MEMBER: Some growers would have to leave them all summer, where you have 20 acres of potatoes and it rains almost every day.

C. W. WAID: You are likely to have serious obstacles to overcome in connection with the grading of potatoes. To show you how hard some people try to avoid grading. When they found that they were to be forced to grade, there was a petition of some 5,000 growers sent in to the Food Administration and the Bureau of Markets. All of the Congressmen of the State were petitioned; the Governor of the State, the Food Administrator and the State Board of Agriculture, and a number of individuals who were politically quite strong, were appealed to to try and make a change, to modify the grades. And in spite of this the Bureau of Markets still stood firm that they were doing something that was in the interests of the growers. They have been assailed from all sections of the country, but those attacks are getting less and less as the men are seeing the light, and have reached the point where they can overcome their difficulties. You can rest assured that the grading of potatoes is more difficult than most farm products, for the reason that weather conditions influence the crop so decidedly, that it is difficult to control it. But by using good seed and then having that handled in a careful manner, in the majority of cases where the potatoes are grown on soil suitable for their production, you will find that there are not so many obstacles to be overcome under a not too stringent grading. And we have come to the conclusion that *this grading* is not too stringent.

A MEMBER: Does the Government ask us to act on this to-day, or do they only ask us to act on the standardization of colors, etc.

J. LOCKIE WILSON: We do not want as vegetable growers, who after all are only a small portion of the community, to sell the citizens potatoes of which after they are pared there is nothing left. If we do nothing in the way of co-operation, the Government will go on and carry through the Act without us. But as reasonable business men it is up to us to put in a resolution before this Convention adjourns, a proposition that will meet with our views, and that will be a matter to a large extent of compromise because, in all these great reforms, some men must suffer for a time, and we must take our share of suffering by these forward movements. The fruit men objected for a time but no one would say to-day that the Fruit Act should be repealed.



Improved strain of Detroit Dark Red, produced at O. A. C.

C. W. WAID: Inspection should be at the loading point. That is being done in the case of some Colorado growers and it is working nicely. Where men club together in a community it can be done at not too much expense. If you can show that injury has occurred in transit, you could make a claim from the Railway Transportation Company; whether you could collect it is another matter. But we have not had much trouble in that respect.

J. LOCKIE WILSON: What is your experience in shipping ripe potatoes—have you had much damage?

C. W. WAID: Hardly any at all. "Free from serious damage" means that the appearance shall not be injured to the extent of more than twenty per centum of the surface, and that any damage from the cause mentioned can be removed by the ordinary process of paring without increase in waste of more than ten per centum by weight over that which would occur if the potato were perfect.

T. D. DOCKRAY: Have you found many cases where much soil sticks to them by the time they get to the inspector?

C. W. WAID: It is not an uncommon thing to find 10 lbs. in a sack of 90 to 165 lbs. In most cases we do not find any considerable amount of it and it will sift out before it gets to the consumer. But we have not had much difficulty in meeting the grade so far as dirt is concerned. The principal trouble has been the mechanical injuries and dry rot in transit. If mechanical injury is prevented you will not have any trouble with the dry rot in transit.

HY. BROUGHTON: The dirt remaining on the potato is the result of picking up the potato while it is damp.

THOS. DELWORTH: We have here a number of men who grow potatoes in a large way, they are shipped by the carload at the end of the season mostly, when they are fairly ripe. Then a number of us close to the cities market our potatoes in an immature state. We certainly don't want to adopt anything that is going to be bad economically. We want to assist in the production in this country. If those potatoes are dug in the immature state, they could I suppose be graded as No. 2. To speak of value for feed purposes does not help us at all, because the grower has no facilities for feeding. The food value of a bushel of small potatoes is equal to that of a bushel of large ones. Where we have customers eager and willing to take them at a reduction of the price from the large potato I think it is a hardship to hamper. In so far as I understand the Act, it will prohibit the sale of those potatoes.

J. J. DAVIS: No, the Act provides for No. 1 and No. 2 grades, and those potatoes must be up to those grades, but we can sell any kind of potatoes ungraded.

THOS. DELWORTH: With regard to barring because of being immature, that certainly would be a hardship, because those potatoes must be dug by that market gardener while immature in order to compete with the imported crops. I have faith in the justice of the Parliament of Canada to this extent, that if our case is presented to them logically and clearly, and we can show that the Act as proposed will work us an injustice, it will be changed. It is up to us to decide what we want and to state our case. I think most likely this is a forward movement, provided that all diverging interests are taken into consideration.

J. LOCKIE WILSON: There is nothing in the Act to prohibit the selling of immature potatoes.

A MEMBER: If we take those small potatoes out of ours, we have no use for them and we have nothing to feed them to.

J. LOCKIE WILSON: You can sell them ungraded.

A MEMBER: But then the customer will want graded potatoes.

J. LOCKIE WILSON: That is what the Act is for, to bring the grading of potatoes into demand and use.

C. W. WAID: It seems to me that you are in quite a similar condition to what we were last year, and that there is considerable misunderstanding. We have found that the best results have been secured by asking the different organizations that are concerned, to send representatives to the men who had the matter in charge and to discuss it with them and get on to common ground, and in that way we have brought about the modifications that were necessary, and I am satisfied that you can do the same. But, if you attempt to do what they attempted to do over there at the start and try to force the thing, you will not get ahead much because we did not. It was only when we came to work the thing out together that we were able to advance.

F. F. REEVES: It seems to me that the only way you can get at this thing is to appoint a small committee to work from now until this evening to bring in a resolution before the meeting, and I would move that a committee composed of Hy. Broughton, J. W. Smith, Thos. Delworth and W. J. Cook—Mr. Waid will give his valuable assistance to it I know—meet between now and ten o'clock to-night and draft a resolution, bringing it before us before closing for either rejection or adoption.

Seconded by J. Lockie Wilson and carried.

RELATION OF TEMPERATURE, MOISTURE AND FERTILITY TO PLANT DISEASES.

A. H. McLENNAN, TORONTO.

In order to be able to study more satisfactorily this side of vegetable gardening we must understand more completely that plants and human being are identical in their resistance to disease. That given certain conditions each can combat successfully any disease. It is well known that where man follows nature's rules he escapes disease; if he does not he has to pay the penalty. So it would be with plants if we human beings had not chosen to interfere, for our own benefit, with nature's methods. Seeing that we, forcibly, have done this, it is necessary that we try to follow as closely as possible what nature would have done if we are to retain the rightful balance.

If we will recognize each plant as a child we will get off to a good start in our work. Nature gives each plant a definite type of growth with definite food requirements. Do we study each closely enough so that we know exactly what is best for it? Few of us are really making a close study of plant growth and until we do we will make many and often serious mistakes.

All plants require, largely, four substances in the soil for their growth—lime, nitrogen, potash and phosphorus. Of these, lime is not so important as the others, being really a soil sweetener and helping to make soluble the other three for plant use. For this reason we will consider only three. As with the human, the plant must have a steady supply of all foods. If some element is lacking it means that the plant will be weakened in growth just so much. Supposing phosphorus were lacking—and it is a well known fact that it is very deficient in most soils—what will happen? The plant structure would tend to make too rapid a growth and, if any adverse condition set in, disease would very quickly seize the opportunity and the plant. It is claimed to-day that lack of potash in the soil is causing considerable trouble in potato growing and that the cause of our so-called physiological diseases can be traced to its absence. Our experimental work on tomato streak diseases shows very conclusively that an application of acid phosphate will, to a large extent, stay the ravages of this disease. Onion blight starts when the bulb is about one-third grown. Bordeaux mixture has little effect on it. Experiments show it is not from lack of potash and phosphorus in the soil. Will nitrate of soda serve? It is well known that it will draw moisture to itself from the surrounding soil. What little work has been done so far seems to prove that it at least will go far toward preventing the disease.

Many diseases got started in crops through too great changes in temperature. This cannot be controlled outside but under glass it is possible and here we find more diseases developing, especially in the early fall and late spring. The tendency for most of us is to try to save coal at these periods and many of our troubles are directly traceable to this. While it is well to be sparing of cost in production we should never allow our crops to suffer. The steadier temperature at which plants can be grown means a greater return.

Many also in greenhouse work do not give sufficient air. Especially is this so among the newer growers. They seem afraid to give the plants all the fresh air possible and generally have to make two or three failures before they do so. I was asked the other day why the seedlings in a certain greenhouse died each year;



Celery plants producing seed under glass at O. A. C.

the trouble was that the man did not ventilate and the plants burned. Fresh air will harm no plant as long as it does not strike directly on the plant.

Excess moisture in the greenhouse probably gives rise to more diseases than any other cause. Too many growers seem to think that the plant can stand any amount of moisture and then run the house at either a very high or very low temperature. Most of the mildew on lettuce and tomatoes is attributable to carelessness with either of these factors.

We have only started on this work but so far results indicate that a closer study must be made of each of these factors for each crop. While it is not so easy to handle this work outside, especially the temperature factor, still we have control of two out of the three factors and nature will take care of the other much better herself than we could.

SUCCESSFUL ONION GROWING.

W. J. COOKE, CATARAQUI.

I am here to-day not because I know all about growing onions, but to give you some of the methods successfully employed in our district. In common with vegetable growers, supplying nearby markets, we diversify our onion growing. The winter top onion is planted in August to be dug for a green-bunch onion as soon as frost leaves in the spring. The English Multiplier is planted on the frost in spring, to supply an early bunch onion, and is the best flavored of all for eating in the raw state. This is followed by a planting of Dutch sets and a sowing of seed of an early white variety for summer bunching. The seed of the hard onion for winter keeping is sown as soon as the land will work friable and a little later the transplanted onion raised in hotbed or greenhouse is planted in the open field for fall use.

In growing any crop to "aim high" is a good motto, and our aim in onion growing is 1,000 bushels per acre, and as we come near the target in growing transplanted onions I will explain our methods.

Our land is a friable loam with enough clay in its make-up to cause it to crust slightly if not properly cultivated. We have more sandy land, but the lighter the land the more trouble we have with the onion maggot.

In growing any crop successfully, you must start the year previous, and we raise early cabbage on the land that will follow in onions next year. This cleans the land perfectly and economically. After the cabbage is harvested, about August 1st, the patch is disced with a cutaway harrow which cuts leaves and stumps to shreds. As we draw manure from city stables the year round and land to spread it on is scarce at this particular season, we coat this with 30 tons of city stable manure per acre. This is immediately plowed under and disced at intervals to conserve moisture, start and kill weeds and cause decomposition of the manure.

The last operation is to cover this with a dressing of well-rotted manure and plow just before freezing. The decomposing of this manure during the fall liberates mineral ingredients in the soil, besides those it supplies, and a rich friable soil awaits you in the spring.

One advantage of transplanted onions over winter keeping sowed onions is that, with us, the sowed onion does not crop well unless planted very early, and if the season is unfavorable for the early working of land they are often planted on land imperfectly prepared with a resulting loss of crop. The transplanted onion, however, is planted a little later and the land is generally better prepared. This year we grew a better crop of onions than usual. The land was in a block with land we worked very early for white onions. The block was worked crossways and this early and extra working of the transplanted onion land, I think, increased the crop 100 bushels per acre.

We grow our onions in hotbeds, sowing 1 lb. of seed to 9 or 10 lights—a light measuring 3 ft. by 6 ft. Although the onion seems to thrive outside in cool land it needs considerable underheat planted in the latter part of March, to insure a good germination and steady growth. The soil should be friable and rather retentive of moisture. The curse of this crop in hotbeds is the damp-off fungus which makes patches of the plants look as if boiling water had been poured on them. Much watering favors the fungus, hence the retentive soil. If watering is necessary it should be done in the morning of a sunny day, and

the ground between the rows stirred with a 4-inch nail after the ground dries a couple of hours. Some top-dress their soil with gritty, pit sand, which is sterile to some degree and prevents the forming of fungus. These methods and plenty of air will hold the disease in check; when the plants show a straggled growth they are clipped back with a shears to within $2\frac{1}{2}$ inches or 3 inches of the ground and trimmed slightly again, just before planting to prevent trouble in planting.

The land being thoroughly prepared and levelled it is marked in rows 15 inches apart and light furrows run with the hand plow. The sets are dropped 3 inches apart and the earth firmly pressed around the roots. If the ground is at all dry, it is better to take a watering-can with the nose off and run a small stream



Grading Onions.

in the bottom of each furrow and put the roots in this. If you have irrigation this need not be done, but instead a good watering given immediately after planting to start the plants quickly. If this is not done, the dew worms, numerous in garden soil at this time, may find the row the easiest road to the surface and disturb the roots or even pull some onions to the top of the earth.

Cultivation is given with the wheel hoe as soon as the plants are straightened and after every rain or when weeds start. Two or three hand weedings will be necessary, breaking the soil between each onion systematically. We find the Hazeltine Weeder a good tool.

Coming from a district infested with blight, I should mention it. This disease makes its appearance, generally in a period of hot weather with muggy

nights, with a bluish tinted mildew on the sides of the leaves. They soon turn yellow and when the season is right for a good show the whole patch will become affected and in two weeks from the first appearance, be practically dead, with a loss in crop of from 25 per cent. to 50 per cent.

In our own diseases we recognize critical periods, during which the doctor is ever in attendance and ready with remedies. Many of our vegetables have critical periods more or less marked. The potato blossoms and sets tubers at about the same time, and the two operations are disastrous to the crop unless the season is very favorable. The early tomato sets fruit while the vine is still getting its growth and unless cultural methods are correct it may at this weakening period be struck by the tomato blight or produce a very diminished crop. The onion, having a gradual growth of bulb, however, shows no reason for a critical period. Nevertheless, it has one. If we have a later sowing of onions beside a patch seeded earlier and being consequently more mature, the earlier and being consequently more mature, the earlier planting will be ruined by blight while the later or less mature patch will escape entirely or until it reaches the critical period in its growth. This shows conclusively that atmospheric conditions do not cause the blight unless the onion itself is in a weakened or at least a receptive condition for the fungus.

In looking for methods of overcoming this disease, I thought that my heavy manuring of land would supply enough nitrogen, would supply and release enough potash, but that phosphorus being the weak link in soils and manure might be lacking. I added it to the land in the insoluble form in basic slag, the soluble form in phosphoric acid, the animal form with more nitrogen in tankage, and I even tried the only available potash in wood ashes, and all without result. I have decided to try a quick-acting form of nitrogen as in nitrate of soda just before the critical period, hoping that the induced growth may carry the crop past the blight period. The Vegetable Department of the Department of Agriculture has done good work eliminating remedies that have proved futile, and we hope soon with the combined efforts of vegetable specialist and grower to find a solution of this problem.

One value of the transplanted onion to a vegetable grower near his market, is that if the supply of summer bunch onions becomes short, the transplanted onion will fill this want for a long season. It is also on hand in the catsup season, when so many housewives find their recipes call for 12 large onions. It makes an attractive large onion to sell by the bushel and the entire crop may often be sold at a good price before the winter onion from the large onion districts is on the market. This is a valuable point in a year of large crops.

Another item, however, that favors the suburban gardener is that he has no excessive freight rates nor exorbitant commissions to pay. Were it not for the fact that the grower near the city, on expensive land and rising high priced labor, raises a large crop and can place the same on the market at periods of good prices, he would have trouble competing with the specialist growing onions in large acreages. Diversity of crops and a continual scientific striving for large crops are the keynotes of the gardener to-day. By attention to these only can he give himself a just remuneration, place his product on the market within the reach of all and take his place in the period of reconstruction now upon us. Food helped win the war and food will as surely help pay our war debt. It is only by export that we can increase our wealth and food products will continue to be our largest exportable commodity. This must compete with the world, and we must grow such large crops that we can meet that competition. In our

own special product, we find the returned soldier and his family will be one of our best customers, and we do not want to embarrass him with burdensome prices—he does not deserve it. In this lies our patriotic duty, to raise large crops at fair prices and by diversification to prevent a glut in any one commodity.

As I look into the faces of the older members present and know how you have suffered and sacrificed to win the war, and know that this same spirit has permeated the agriculture of Ontario, it is at least discouraging to note the slurs cast upon us by a press devoid of sympathy for and without understanding of the agricultural interests of our Province.

Nevertheless, let us carry on in the future as in the past, we, who, living in God's open country, love that country best, and will ever continue to be her support in times of stress.



Onions bagged, ready for shipment.

A MEMBER: How would you apply the soluble form of nitrate of soda

W. J. COOKE: Mixed with several times its own weight of sand, sow it broadcast on a dry day.

PROF. CROW: In the case where a more mature bulb takes the blight, and the other does not, does the later planted bulb get through the season without it?

W. J. COOKE: Not necessarily. When it reaches the critical period of its growth the conditions may not be favorable for the blight. However, I am not advising a late planting of onions, as it is useless in our district, but just showing the fact that it is not atmospheric conditions alone, but atmospheric conditions at the critical period in the growth of the onion that work together to cause blight.

W. S. EBORALL: The only way to protect the plant from blight is to get your seed in very early. Last year I put it in on the 31st of March. I have my land worked for early sowing, and I find it is better than transplanting. I sow very thinly, thinning them about the middle of April.

W. J. COOKE: The greatest crop of sowed onions will not be thinned at all.

W. S. EBORALL: I dare say so, but last year I had 1,000 bushels an acre.

W. J. COOKE: We have often sowed the Prize Taker, but with us we have never got the crop that we did with transplanted onions. We sowed as early as it was possible to get on the land, but nevertheless we got the blight.

A MEMBER: When do you recommend sowing a fertilizer?

W. J. COOKE: Before the drag in preparing for planting. There will never be any success in spraying onions. They must be planted so close together on expensive land and the onion leaf being of such nature that it is very hard to get the spray to stick, I have come to the conclusion that we will never stop onion blight with spraying and that it will be by some cultural method. Earliness is a great thing but we always sow our onions as early as we can.

MARKETING AND GROWING OF GREENHOUSE VEGETABLES.

JAS. D. NAIRN, BARTONVILLE.

Nearly every year we try to increase either equipment or ground space and we now have 44,000 square feet of ground covered with glass. When I erected the first range of houses we installed a steam tubular boiler, so that we could burn cheap fuel, which of course necessitates having a night man. The soft coal is the cheapest but for a small range of houses the hot water system is much cheaper in the long run, as it needs less attention. We also installed a good sized electric welded tank and an air-compressor which we use every night for blowing tubes of boilers to save coal and labor, which is also used for automobile tires on delivery cars. Last summer we built a coal bin that holds about four hundred tons of coal with a plank driveway to drive up on top with motor truck and dump over the sides. Under the plank driveway we put a track and use a farm litter carrier and it carries the coal inside in front of boilers. Also we put a track outside some distance with swing pole to take out the ashes, with this system the men do not mind the coal and ashes.

Everything is grown on the ground except in one house 25 by 112. That is partitioned off from the other range so they can keep it at a higher temperature. It also has raised benches in it for four beds.

This year at present we are growing lettuce, cucumbers, parsley and tomatoes for the spring crop. The reason we grow cucumbers at this time of the year and earlier is because there seems to always be so much green stuff on the market in the fall, and, until celery is nearly finished, the demand is not so heavy. If we growers would take more notice of what each other grew in the fall there would be a market for us all and not so much of one variety.

LETTUCE. For the fall crop we grow all the small plants inside in the plant house where we can shade and look after them better. We plant twice; once on bench, the second and last time we plant 8 by 8 inches. Grand Rapids seems to be the favorite. It is nice and curly and easy to handle. We started to cut this October 15th, which is a little early, and have been cutting every day, since dealers in some towns and cities can sell a smaller lettuce than in others and of course they are planted closer. We fumigate very heavily with tobacco when lettuce is small, but when lettuce is larger not so much. Be sure your houses are quite dry or else the fumigating will burn the leaves of the plant. The best

and heaviest lettuce we ever grew was last spring when we had heavy snow, when it melted so fast that we could not keep water out and some of the houses got so soaked so that you could not step on the ground. The lettuce seemed to be very solid. That what you would think was ruined, was the very best we had last year, but the weather was bright and we gave lots of air. We use about five carloads of manure and two tons of fertilizer per year on the ground under glass.

PARSLEY. We sow seed of the mossed curled in early spring, thin and weed it and do not cut in summer until it is put inside or about two weeks before and it seems to stand the hard cutting all winter. We plant it in the shadiest place as it will grow where lettuce will not.

CUCUMBERS. For this fall crop we planted on the ground level. We trained the vines up six feet and let them run over the top on wires. They have been producing extra good cucumbers since before Christmas and are still bearing well. We planted six rows in a 40 foot house by 125, 3 feet apart with no beds, go



Gathering Rhubarb for Market.

over them by hand to pollinate them, but with the extra labor and coal you have to get a good price to make it pay. Nevertheless it is a good crop when the demand is not there for easier crops. The variety I grew was Davis Perfect.

TOMATOES. We plant the entire crop in spring with tomatoes 16 by 32 inches apart. The reason we use that distance is we started to use the lettuce marker and it seemed satisfactory. This year we sowed seed December 15th. Grand Rapids and Carter's Sunrise are the only two varieties we are growing this year. We use the benches where we grow the lettuce plants and transplant twice and the third time into permanent beds. We have been getting along much better with this way of growing than when we grew in pots and flats. With the winter blight they never seem to get checked. We trim the single stem on steel rods $\frac{1}{4}$ by 7 ft. with wire on top. The Grand Rapids seems to be a little better setter on top for size and a little earlier than Carter's Sunrise, but some days last year when we were picking one day you would say the Rapids were the best, then

the next day you would say Carter's. We will stay with them both for the present as I have been saving my own seed. We mulch with manure heavily, when we get bottom fruits set or when we get most of the leaves off.

RADISH. We sow these more as a catch crop if we cannot keep up with lettuce plants. In February and March there seems to be the largest demand for hot house radish or just before frame radish are in. Radish seems to grow better slowly on ground beds with less top and much firmer and crisp. We sow in rows by hand and sift seed five inches wide.

MARKETING. Lettuce we always try and cut when the sun is not shining and carry into wash house where it is packed. We have a large tank of water with enough steam turned in to take chill off water and plunge lettuce right into the water. For store and wholesale men we pack two doz. per orange case, but for shipping we pack in larger cases. We do not sell retail on the market. The stores and wholesalers telephone their orders direct to me and we make one delivery and sometimes two every day. Always wash your lettuce in good clean water and paper box well and it will keep for your customers one week or ten days if necessary in winter months. Lettuce unwashed or just sprinkled in a box not papered to keep air out will not stand up. We put just as much time on our goods when they are scarce as when they are plentiful. It pays in the long run. Parsley is cut any time in the day or sometimes at night; when put in cold water it will set firm soon after. The variety of cucumbers we have now will keep as long as two weeks without changing color as long as they are not bruised. We pick tomatoes any time. Every tomato is wiped with a cloth and packed into 15 pound baskets stamped on the handle. We sort into two sizes No. 1 and No. 2, which are delivered the same day or next morning.

WINTER INJURY TO SMALL FRUITS.

JAS. A. NEILSON, O.A.C., GUELPH.

Winter injury to small fruits is not an unusual occurrence in Ontario. As a matter of fact, more or less injury occurs nearly every winter. In some years, however, owing to unusual climatic conditions the loss is very heavy. The winter of 1917-1918 was one of the most disastrous in the history of Ontario, all kinds of small fruits and nearly every section being affected, the extent of injury varying with the locality and the varieties grown.

From observations made during the past summer while studying winter injury to fruit plantations in Ontario and from information gleaned by correspondence the writer has obtained some data relative to the damage done in various districts and the kinds and varieties affected.

ST. CATHARINES DISTRICT.

Red Raspberries: 6% to 7%.

Strawberries: 10% upward.

English Gooseberries: 10% to 30%.

Blackberries: 20% to 50%.

Black Raspberries: 50% to 100%.

NORFOLK COUNTY.

Raspberries: 10% to 15%.

Strawberries: 20% to 50%.

GUELPH.

Currants: No apparent injury.

Raspberries: Some bud killing and killing back of canes.

Strawberries: Killed in unprotected sections.

BURLINGTON.

Strawberries: Some plantations were very severely injured; in other places, lightly injured.

Raspberries and Currants: Badly killed back in low areas in the plantation.

COLLINGWOOD DISTRICT.

Red Raspberries: Cuthberts—Badly killed back.

Slightly injured.

Strawberries: Badly killed excepting where mulched.

VINELAND STATION.

Winter killing of currant varieties 1918. The data in this table was furnished by Mr. Don Kimball, Pomologist of the Station.

Black Currants:

Eclipse, 85%.

Boskoop Giant, 40%.

Kerry, 15%.

Baldwin, 10%.

B. Naples, 5%.

Victoria, 5%.

White Currants:

White Imperial, 50%.

White Grape, 5%.

Red Currants:

Wilder, 30%.

Pomona, 25%.

Red Cross, 15%.

Prince Albert, 10%.

London Market, 8%.

Diploma, 5%.

The following varieties were not winter injured:

Black Currants:

Magnus.

Buddenbourg.

Clipper.

Topsy.

Eagle.

Climax.

Collins' Prolific.

Saunders.

Black Champion.

Lee's Prolific.

Red Currants:

North Star.

Victoria.

Versailles.

Fay's Prolific.

Raby Castle.

Perfection.

France German.

Everybody's.

FACTORS WHICH PREDISPOSE SMALL FRUITS TO WINTER INJURY.

1. WET SOILS.—In almost every instance it was found that the injury was greater in low or poorly drained areas. This applies especially to raspberries and to a lesser extent to currants, gooseberries, and strawberries. The plants on the well drained soils came through in much better condition. Wet soils may cause growth to continue late in the fall and thus prevent the proper ripening of the wood. In the case of currants and gooseberries it has been found that fungus diseases are more prevalent on the wet soils and these predispose the plants to injury as will be pointed out later.

2. PLANT DISEASE.—Plant diseases such as Leaf Spot and Anthracnose of the Currant—Downy mildew on the gooseberry—and Leaf Spot and Powdery mildew of the strawberry are fruitful causes of injury to the foliage of their respective host plants. They often greatly weaken these plants and lessen their powers to withstand severe cold. Careful observation has established the fact that winter injury is greater on plants which have been severely attacked by disease than on those plants which are free from disease.

3. INSECT PESTS.—Sucking insects such as Aphids, frequently injure currants and gooseberries by sucking the juice from the leaves and the currant sawfly and other leaf eaters often completely defoliate the bushes early in the season, thus interfering with their normal growth and rendering them more susceptible to injury by low temperatures.

4. INTENSE SUMMER HEAT.—Occasionally during very hot periods in the summer the leaves of currants and gooseberries fall off, and this in turn weakens the plants to such an extent that the fruit buds are killed during severe winter or the canes may be partly killed.

5. HEAVY SUMMER PRUNING.—Several years ago the writer's attention was drawn to a small plantation of raspberries that had been injured by heavily cutting back the new canes after the fruiting season was over. The canes afterwards produced several strong shoots from lateral buds, and these were in turn cut back. The bushes which had been cut back were badly injured during the winter which followed, whereas those which had not been headed back came through the winter in good condition. The effect of this treatment could be seen for several years afterwards.

EXPOSURE TO STRONG COLD WINDS.

Small fruits growing in sections exposed to strong cold winds were invariably more injured than those growing in better protected areas.

ABSENCE OF SNOW OR OTHER PROTECTIVE COVERINGS.

In sections where the snowfall was deep as in the Ottawa district small fruits did not suffer so severely as where the snowfall was light or where no mulch was used. This statement refers especially to strawberries. A very good example of the effect of a mulch on strawberries was seen near Craighurst in June last. All the plants on a fairly large plantation were killed except in one section where the snow had accumulated on the face of a slope. No mulch was applied to this plantation. In Norfolk County the loss in strawberry plantations was very heavy, especially where no mulch was applied, but where a mulch was used the loss was very much reduced.

SUGGESTED MEASURES WHICH MAY BE TAKEN TO PREVENT WINTER INJURY.

1. Grow those varieties of good quality which are known to be hardy in your district.

2. Plant small fruits on well drained land.

3. Avoid cutting back raspberries in the late summer or autumn. Cutting back can be done just as effectively and with more safety in the spring. Do not cultivate raspberry or blackberry plantations late in the summer as this causes a late growth which is more susceptible to winter killing than well ripened canes.

4. Protect strawberry plantations by a suitable covering such as straw or marsh hay. This should be applied in the late fall after the ground becomes frozen and raked off the plants into the space between the rows.

5. Watch closely for the appearance of insect pests and when these are found apply the remedies recommended in the Ontario Agricultural College Spray calendar.

6. When fungus diseases are known to be present on bush fruits spray thoroughly with those fungicides recommended for the control of these diseases. If leaf spot of the strawberry is prevalent, mow the plants after the fruiting season is over and burn the foliage when dry. As can be readily seen the treatments suggested are only those which are fully in accord with good horticultural practice and which can be easily applied.

JUDGING VEGETABLES BY SCORE CARD.

A. J. LOGSDAIL, C.E.F., OTTAWA.

Some time ago your Secretary wrote to me asking me to take up the matter of judging by the score card. He doubtless did this because I had offered certain suggestions as a result of my experience during the past summer while acting as judge at the O.V.G.A. Exhibition in Kingston. I accepted the invita-



Hothouse Cucumbers.

tion to speak, knowing that it would afford me an opportunity of meeting many old friends and discussing with them many subjects of mutual interest. The opportunity affords me a chance to say something to the exhibitors and such a chance is rarely afforded one in the capacity of a judge. Should I, as a judge, assert that I consider that my rulings in past shows were eminently satisfactory I would deservedly get into trouble; but, were I merely to suggest that I had done my best, there would be sure to be someone to even criticize this assertion.

Before taking up the matter of the score card I made application to several sources for examples of the score cards that they employed. Upon receiving a number of these, of which I have copies, I found such a diversity in the relative scores apportioned to several characters of a crop that I finally came to the conclusion that I might also with safety devise a score card of my own. Certainly I could not be accused of being totally wrong, because, apparently, no one was absolutely right. About the most useful card or series of cards that came to my attention were those, more in the nature of guide cards than score cards, which

I received from Professor Brodrick of the Manitoba Agricultural College. On these cards no actual apportionment of points was given for each feature or character of a crop, but the several characters were enumerated in order of importance and by this means the actual relative values were left entirely to the discretion of the judge, but he was by this means reminded of the several points that he had to consider. I understand that Mr. J. A. Neilson was the original outliner of these cards, and that they were afterwards considered, altered where it was thought necessary, and adopted by the Manitoba Horticultural Society.

So much for the score cards. We now come to the matter that, to my mind, concerns the O.V.G.A. competition more particularly than other competitions, namely, the feature of awarding one-half the points available to package. Surely the proof of a package should be in the condition of the fruit upon arrival at the point of destination. If the fruit is injured the package cannot be considered perfect, but then we come to the problem to be solved in this connection. Many of the exhibitors pack their fruit in packages very suitable and desirable for local marketing, but these packages were not of a nature fit to stand up against the rough usage they were subjected to upon a long express journey. The majority of exhibitors have devised attractive packages for marketing their products in their local markets and it seems to me hardly fair to score a man down for a package that has failed to live up to the requirements of transit, for which it was never devised. Owing to this condition of affairs some local fruit of inferior quality was in a position to outscore some distinctly superior fruit that has been subjected to long transportation. If possible, I would like to see an opportunity given to these exhibitors to pack their fruit in their own local market package, just as it might appear before leaving the packing house or room. I ask you to bear in mind that I am only expressing personal opinions, some of which you may entirely disagree with, others of which may be practicable, but I do not know the circumstances governing the case, and I make these suggestions with the hope that some of them may be feasible.

There is another matter that I would like to mention, namely, that, where possible, the exhibits of the O.V.G.A. be judged before they are set up. I think it would greatly assist the judge in arriving at a closer approximation of the relative merits of the exhibits. Further, the judge who is called upon to judge exhibits that have been arranged for a display is liable to do one of two things, either handle and look over the several exhibits in a very slipshod manner and leave the display still presentable, thereby pleasing the committee in charge of the display, but far from pleasing the exhibitors; or he may carefully go over each exhibit and make a total mess of the arrangement of the whole exhibit. In the second case he may please the exhibitors, but considerably annoy the exhibiting committee. He may even annoy all concerned.

I think it might be feasible for the judge to turn up half a day or even a day earlier and judge the stuff for competition before it is finally placed as a display.

There is one more topic that I would like to bring to your notice. The idea is not a new one. It has been employed by the poultrymen in many of their exhibitions, but it seems to me that the idea is well worth copying in many horticultural competitions. I refer to the graduated allotment of prizes according to the number of entries in any particular class. I take as my basis the value of the prizes given in the O.V.G.A. competitions, and I submit an example that will perhaps illustrate to you the method I have in mind. Namely, if there are only three entries in a class, let one prize be awarded; four to five

entries, two prizes; six to nine entries, three prizes; ten to twelve entries, four prizes; twelve to fifteen entries, five prizes; sixteen to twenty entries, six prizes. This scale might be extended to a maximum of eight or ten prizes. The prizes of these values, on the basis of those given in the O.V.G.A. competition, might be arranged somewhat in the following manner:

1 Prize.....	\$5.00
2 Prizes.....	\$6.00, \$4.00
3 "	\$7.00, \$5.00, \$3.00
4 "	\$8.00, \$6.00, \$4.00, \$2.00
5 "	\$9.00, \$7.00, \$5.00, \$3.00, \$1.00
6 "	\$10.00, \$8.00, \$6.00, \$4.00, \$2.00, \$1.00



PARIS GOLDEN SELF-BLANCHING CELERY.

The head at the left was grown from seed of O.A.C. strain No. 316.
The plant at the right was grown from commercial seed.

From this scale it will be seen that where an even number of prizes are given the allotment of prize money is in even numbers, and the reverse, namely, where an odd number of prizes is given the prize money is in odd figures. By this means a judge would merely have to count the number of entries in any

particular class, and by reference to the scale or guide card, with which he should be supplied, he would immediately be able to compute the number of prizes he would be entitled to award.

I like this method of awarding prizes for several reasons. First, because in a large class one is compelled to often throw out of a competition an exhibit of really excellent quality that, had the competition been less keen, would have secured a prize under average conditions. Second, this method tends to discourage the exhibiting opportunist, or the man who is always looking for those classes where competition is poorest and where prize money can be easily picked up. We are all, I fear, somewhat prone to the attraction of securing easily won prize money. It is often difficult to encourage a man to exhibit where he knows he will be up against stiff competition, but by employing this proportionate method of allotting prizes the exhibitors would very soon realize that if they entered an exhibit where they would meet competition, any prize that they won would indicate that it had been actually gained and not given.

I do not know that I have been able to give you very much. However, if any of the ideas I have expressed may tend to encourage and extend the interest in the competitions of the O.V.G.A., I shall feel that perhaps your time has not been wasted.

MR. NEILSON who had prepared the guide card to which Mr. Logsdail referred, stated: In order to avoid a great deal of confusion and incidently to avoid being called down I set about to create a standard that might be of assistance. I wrote to quite a large number of vegetable growers in the Province of Manitoba and asked them to draw out for me what they thought was the best type of score card. I received some interesting replies. Some of the information I gathered in this way from discussing the subject with growers, and studying the subject myself. I tabulated this and issued a form, which Mr. Logsdail found. It is only an initial attempt, and it was not perfect by any means and I was rather annoyed when it got into print. I did not know that the Vegetable Growers of Manitoba were going to have this printed and accepted as a standard, otherwise I would have paid more attention to it. I should have taken some time which I devoted to other work and completed it. You can all see it could have been improved upon, but it was only an initial attempt, and I am not claiming that it represents the ideal. Just as an instance of what a judge is up against, I may say that the most interesting and forcible lecture that I was ever given was by a lady in the Province of Manitoba. There was no chance whatever for me to talk. I had to take her lecture. Mr. McLennan, I believe, has undertaken the publication of a book on judging vegetables which I understand will be issued in a short time, and I am looking forward with pleasure to its perusal.

J. LOCKIE WILSON: We offer our exhibitors prizes, and we make it compulsory for all those who make entry at the competitions to exhibit at those three fairs. So perhaps that may account for some of this stuff being inferior at times. So far as our Field Crop Competitions are concerned, if Mr. Logsdail happens to be Judge again, we will arrange to have them judged before they are placed in position.

CELERY GROWING.

C. D. SYER, HAMILTON.

I use Paris Golden Yellow entirely for both early and late celery. The seed for the early crop is sown about the Twentieth of February. I prefer to sow my seed in solid beds rather than in flats.

The soil I use for my seed bed I sterilize by saturating it with a solution of Formaldehyde of 1 quart to 25 gallons of water, and on the principle of making doubly sure I sterilize the seed by soaking it in a solution of 2 ozs. copper sulphate to one half gallon of water in which the seed is soaked for one hour, heating the solution to about 90 degrees.

In sowing my seed I mark my bed with a four-inch marker, and then use a piece of wood about two feet long and one inch square to get a good smooth surface to sow my seed on and thus have it all covered even. I like to cover my seed with a light soil mixed with fine sand and then cover my seed bed with heavy paper so as to keep the surface from drying out. I remove paper when seed is just ready to break through the ground, and then like to keep the frame shaded a little on the very bright days until the plants are up. Before transplanting I give them a through spraying with Bordeaux mixture and a week after I have transplanted them into beds before planting out in the field.

The soil I use for growing celery plants is of a loose porous nature so as to allow perfect drainage. Leaf Mould is Nature's best seed bed and I find that the best substitute is made of sods and well rotted manure well mixed together with a little air slacked lime tankage and a little bone meal well mixed through the soil when ready for use.

All my early plants are grown in Hot Beds as I find I can produce better plants grown in beds than planting in flats.

I prefer to transplant the seedlings just after the rough leaf appears as it has been my experience that I get a more uniform stand of plants. A little practical experience is necessary in order to grow good plants, as it is hard to say without being on the job just when to ventilate or how much water to apply and watering and ventilating are important points in the raising of plants.

As a rule the beginner is liable to coddle his plants too much; and, as a result, he will have a lot of weak and poorly rooted plants. One should avoid extreme heat or cold while the plants are young so as to develop a slow steady growth and stop the great loss in plant raising which is caused by damping off. This disease usually attacks the seedlings, causing the stems to turn black and rot off. And I believe there is no better test of one's ability as a celery grower than by the quality of plants he raises. If he takes pains enough to grow a supply of strong healthy plants it is a safe bet that his field operations will be successful.

About the 24th of May I begin to plant out in the field. The plants are set in rows two and one-half feet apart and the plants six inches apart in the rows. After I have finished planting eight or ten rows I give them a good watering, and from then on I like to water about twice a week towards night and then cultivate the following morning. I find that a good watering after planting and from then on at the right time often makes a difference between profit and loss. I always try and make it a point to spray once a week with Bordeaux mixture after planting until it is time to market it.

For my late celery I sow in the open field about the middle of April in rows 12 inches apart with the seed drill and when the plants are big enough I plant direct from the seed rows into rows two and a half feet apart without transplanting which is generally about the first of July, giving it the same attention as the early celery. In preparing the soil for celery I use from thirty-five to forty tons of well rolled manure and about one ton of fertilizer to the acre. The fertilizer I apply after the ground has been plowed, then disk it well in before harrowing.

W. J. COOKE: What fertilizer do you use?

C. D. SYER: One-third tankage, one-third phosphoric acid and one-third bone-meal.

A. H. MACLENNAN: One firm last year furnished Tankage uncooked and in a raw state, and the gardeners that received this suffered from the burning of the roots of their plants.

WELL BALANCED BUSINESS FOR THE VEGETABLE GROWER.

N. F. THOMPSON, AMHERST, MASS.

For years, we, as vegetable growers, have been devoting our chief attention to problems of production. The chief questions have been on fertilizers, tillage, varieties, disease and insect control, all contributing directly to larger crops. We, I mean vegetable growers, as a class, have been content to limit our problems to the questions of production, increased production, the greatest possible production. During the past war years, we have seen production maintained, by commercial growers, in the face of decreased labor and largely increased costs. We have learned economies in production. We have been brought face to face with problems of management never before so emphasized.

Our people everywhere have been introduced to the possibilities of the home garden and have learned that the contact with the soil and growing things has brought something to them different and more valuable than any possible increase in food supply gained. An appetite for good vegetables has been stimulated that means much to health and pleasure.

Students of the war gardening activities in Massachusetts believe that the products of the amateur during 1918 have amounted to not less than six million dollars, including potatoes, grown in war gardens.

The call for food to replace wheat and meat has called into vegetable growing thousands of acres of land formerly devoted to general farm crops. The development of the auto truck, the common use of the automobile, the established auto highway, has made the production of a variety of vegetables and small fruits on farms formerly far from the market, a paying proposition. The roadside retail market has become an established institution. The forces to stimulate production have all been powerful. The results have been full evidence of the success of the campaign.

We are glad that our business has contributed so successfully to the winning of the war. Now that the strife is over we have some very definite problems ahead of us. They deal with the balance of business.

If I have observed correctly, many of us look for short markets and high prices to satisfy our craving for good business. Is that the proper spirit to maintain our business in our respective communities? Is that the goal of service made

so prominent a factor in the business success of to-day? how about expert management, lower costs of production, less waste, and prices to attract buyers to our markets? There are two ways to make money from any business,—one involves higher prices to the consumer through real or apparent shortages in supply; the other, the decreased cost of production and handling through efficient management, which makes it possible to supply goods to buyers at attractive prices, but still sufficiently above costs of production to leave a reasonable profit in the business. It seems to me that the latter course is the only right one open to us, the only safe one to follow. If this is true, we ought to devote our attention to problems of management and the proper marketing of our products.

At a recent meeting of the Boston Market Gardener's Association the subject of the meeting was, "Do I want my son to be a Market Gardener?" The leader



Vegetable Marrow ready for the Market.

of the meeting called on three leading members, one well over 80 years old and two over seventy, two of these three men still active and directing large operations, all with sons in the business. As these men traced their business history their programme was increased production. To-day they are all thinking more seriously of the problem of marketing, more seriously than during a life time of business. A balance of business is needed.

We are just recovering from a serious shortage in seed due to the fact that we have depended on Europe for much of our seed. To-day, we find Massachusetts growers taking more interest in seed production than for a generation. Business losses due to poor seed have been frequent. Good business management calls for the stopping of this loss. Our business is poorly balanced if we depend upon an unknown quantity in our seed.

Is it possible that we can improve our balance of business as far as our labor problem is concerned? It is not at all unlikely that floating labor will be far less available in the next few years than in the past. Is our business so planned that we need 10 men during the five or six growing months and only three during the winter?

Our fertility problem, not thinking of increased production, but simply for maintenance, is no small one for most of us. We have seen costs of stable manure increase materially and the available supply sharply diminish. This condition is constantly growing more acute. Can we safeguard our business by broadening our business and including some live stock on our farms? Will this help balance the seasonal demand for labor?

Can we turn some of waste products into profit producers? Possibly there is here an opportunity to increase efficiency. We may put products into pork or glass and in either case be better prepared to "carry on." Or better seed, more careful planting, better cultural practices may eliminate poor products, wasted land and labor and put profit into the business while still maintaining prices to give pleasure to the consumer.

No man can manage his neighbor's business. No person can do more than suggest ways and means. Each must exercise his own initiative and ability, in this wonderful North America in which we live, to work out our principles of freedom. But we must not so develop our individuality as to lose sight of the opportunities, the pleasures, the profit to be obtained through a co-ordination of effort, a real co-operation and pooling of interests. No class of business men are more tardy in this realization than the men who get their living from the soil. No body of men can accomplish more through co-operation, particularly when wisely and broadly directed. We are approaching a day when we must co-operate in a business way. My last suggestion as to means of balancing our business is that of co-operative business organization.

It may be too early to talk about our New England Experiment for co-operative buying and selling: the Providence Farmer's Exchange. To many of us it exemplifies what must become more general, what will give us power to buy at wholesale, as most of us sell; power to reach markets beyond our reach individually, an appreciation of the possibilities and opportunities which will make better growers, better business men, broader citizens and give a permanency to our enterprises that individual competitive interests could never attain.

A better balance of business—let that be our programme.

VEGETABLE SEED PRODUCTION.

A. M. McMEANS, DOMINION SEED BRANCH.

Vegetable seed production is a very comprehensive subject, which gives me much latitude and allows me to wander far afield, so that instead of dealing with the growing of any one variety of seed or seeds, I am giving you a glimpse of the size of the seed production industry in the United States as set forth in their seed survey of July 1st, 1918.

In the different States of the Union there were 262,643 acres devoted to the production of root and vegetable seeds. By using the Mississippi River as

an arbitrary dividing line, in the making of a geographical division between the Eastern and Western States, it will be found that 70.81 per cent. of the above acreage was in the States lying to the west of that river.

If we separate the vegetable seed crops, omitting such as are known as canners' crops, consisting of peas, beans, corn and tomatoes, also onion sets (which are not really a seed) place these to one side and take all the other root and vegetable seed crops, it will be found that in the State of California last season, there were 23,255 acres or 39 per cent. of the total area in the United States, devoted to the production of these other root and vegetable seeds.

In going over the respective individual seed crops as regards acreage and estimated average yield per acre, some interesting information is revealed as follows:

State	Acres	Standing	Crop	Percentage of total area	Estimated Average Yield per acre—lbs.
California.....	6,882	First	Onion	95	400
“	2,276	“	Lettuce.....	99	565
“	4,609	“	Carrot.....	99	789
“	175	“	Celery.....	99	510
“	155	“	Parsley	99	800
“	123	“	Salsify	99	550
“	255	“	Parsnip	94	880
“	4,989	“	Pole Beans.....	79	1,050
“	2,459	“	Garden Beets.....	89	1,100
“	272	“	Mangels	65	1,375
“	667	“	Winter Squash....	22	400
“	1,069	Second	Spinach	27	700
“	3,345	“	Radish	38	850
“	735	“	Tomato	18	200
Washington.....	38,467	First	Garden Peas.....	36.7	900
“	353	“	English Turnip....	46	1,200
“	227	“	Swede “	83	1,200
“	1,767	“	Spinach	45	1,000
“	514	“	Cabbage.....	52	550
“	323	“	Summer Squash...	35	325
“	101	Second	Mangel	24	1,350
Colorado.....	29,912	First	Beans, Dwarf Snap	42	725
“	2,759	“	Cucumber	90	325
“	1,256	“	Muskmelon	80	250
“	1,117	Second	Sugar Beet	18	1,315
New Jersey.....	309	First	Pepper	43	110
“	1,455	“	Tomato.....	36	60
Idaho.....	2,672	“	Sugar Beet	44	1,020
“	25,403	Second	Garden Peas.....	24	900
Nebraska.....	413	First	Pumpkin	27	275
“	3,122	Second	Sweet Corn	22.4	1,450
“	260	“	Summer Squash...	28	300
Michigan	4,404	First	Radish	50	300
“	14,329	Second	Beans, Dwarf Snap	20	590
“	525	“	Winter Squash....	20	150
Illinois	3,041	First	Onion Sets.....	87	12,500
Ohio.....	3,168	“	Sweet Corn	22.7	1,050
Florida.....	8,534	“	Watermelon	81	105
New York	437	Second	Cabbage	44	200
“	164	“	English Turnip ...	21	525

It is interesting to note, that if we analyze those seed crops in which the Pacific Coast States stood second for acreage, namely radish and tomato, we find that Michigan stood first on radish seed acreage with 50 per cent. of the total

and had an estimated average yield of 300 pounds per acre. Compare this with California's 38 per cent. of acreage and an estimated yield of 850 lbs. per acre, we find that California would produce over double the quantity of radish seed during the season of 1918 that would be produced in the State of Michigan, and would do this on 76 per cent. of the acreage of its eastern competitors.

If we look up the tomato acreage we find New Jersey first with 36 per cent. compared with California with 18 per cent. or one-half the acreage of New Jersey. But New Jersey's average reported yield is 60 lbs. per acre, compared with California's 200 lbs. per acre or in other words California with one-half the acreage produces one and two-third times as much tomato seed as does New Jersey.



Vacant Lot Gardening.

These localities have come to the front after years of experiment spent in search of ideal, economic, producing centres. They have been built up chiefly because of climatic conditions governing them. Next in importance to climatic conditions I would place freedom from disease and insect pests. Of course soil conditions and the labor situation have also to be taken into consideration.

The growing of field crops on an extensive scale has its uncertainties and seed growing is even more influenced by the freaks of fortune. From season to season a wide range in yields is seen. The price also fluctuates. California authorities give a range from \$150 to \$300 per acre, as the average money return, season to season, for the growing of vegetable seeds.

Garden seeds have been grown for more than forty years in the San Juan Baptista and Santa Clara valleys of the coast range mountains, south of San Francisco. The more recent developments have been in the delta district of the

Sacramento and San Joaquin Rivers on lands reclaimed from overflow many years ago. These lands for years have been growing asparagus, beans, potatoes, corn and other field crops.

Seed growers do not plant seed crops without making prior arrangements for its disposal, as it is necessary for the dealer who buys the crop not only to know the variety, but also to have some information regarding the stock from which the seed was produced. The usual plan is for seed companies, to furnish seeds or plants to the grower, making a contract for an agreed acreage and to take the product at the contract price. Frequently the seed company furnishes operating capital, taking a crop mortgage for protection.

It is not my purpose to dwell on what Ontario is doing in the way of vegetable seed production or Ontario conditions, suffice to say that the vegetable grower, who selects carefully a definite standard and grows his own seed, will know more regarding that vegetable and make better progress in producing a vegetable of quality, than the grower who buys his seed haphazard and usually without regard as to where it was produced or how, but ever with one aim in view, namely, low price.

PROF. CROW: What about the seed shortage—is it over?

A. McMEANS: There is no seed shortage at the present time except of cauliflower and cabbage and possibly summer savory and some of the herbs. There is a reason for the seed shortage in cabbage. In the Puget Sound District, the Skagit River drains British Columbia—it is in this section that cabbage seed is grown. Last year the Skagit River overflowed its banks, breaking down the dykes on the last Sunday in December, and when the high tides came during January it flooded everything. I was in a seed house on the first of February and the marks where the tide used to come in every day were about 18 inches off the floor. It was figured that they would not get more than 15 per cent. of a normal crop. Our other section is New York, down along Long Island, and they had practically the same kind of winter last year as we did here. Their seed crop was cut down to about 5 per cent. The stock of seed we are working on chiefly in cabbage is surplus stock, which is the reason it is so high priced.

J. D. NAIRN asked the reason of shipping Boston lettuce in here.

A. McMEANS replied that the soil there was very loose in the Belmont section and it was also due to water-holding temperature in that section, and more attention was given to the cultivation.

HEREDITY IN VEGETABLE GROWING.

L. M. MONTGOMERY, COLUMBUS, OHIO.

The subject which I have chosen to speak about is "Heredity in Vegetable Growing." Preliminary to what I shall have to say in that line I wish to emphasize the importance of the vegetable industry, as has been intimated here to-day. There never was a time in the world's history when the vegetable men had such a promising future before them, when the opportunities for development were as great as they are at the present time. And there never has been at any period such a need for the solution of problems as are presented to the vegetable men of to-day. We find ourselves confronted with the situation at this time, on this continent of producing food to feed the greater part of the world. We find that problem to be magnified with the apparent coming of absolute peace. For a

good many years to come, undoubtedly, we shall be called upon to provide greater quantities of foodstuffs than we have yet been able to produce. That being true, we are face to face with the proposition of increasing by whatever means we may, the quantity of food material which can be produced along vegetable lines. Now our improved cultural methods will accomplish a great deal, but the thing which I wanted to impress upon you to-night is the fact that a great deal more is



Cutting Seed Potatoes.

going to be accomplished along the lines which have been set forth here to-day, through the use of inheritable characteristics in seed, along productive as well as other lines. Gardeners too frequently, I think, fail to appreciate the fact that the seed which they use, after all, have as much to do with the production resulting therefrom as the cultural practices which they may use. In other words, there are two great forces at work in our industry—environment and heredity. These two are inseparably linked or associated. They will work together for us, or they will work together against. or working against one another, they work

against us. It is only by the perfect development or more perfect development along both lines that we are going to succeed in bringing about a greatly improved condition in our vegetable culture. We fail to realize the tremendous loss which accrues to the vegetable grower through the use of non-productive strains of seed. And to my mind this is a question which we need to think about fully as much as we do about our cultural problems. And in order that we may bring that about we must seek a practical solution of the question of securing better results from seed stocks, or rather in bringing about the improved seed stocks which may be permanent. Too frequently we think that if we have planted the seed and have gotten a good germination and a good stand of plants, everything else depends upon our skill in producing the crop. Now I am not here to minimize the effects of cultural practice, because they spell much in our success, but I do want to emphasize the fact that no matter how good our cultural practices are, unless we have the seed we cannot hope to make the greatest success.

We have heard something said to-day concerning the matter of standardization and grades. To my mind the first thing that we need to do in attacking this problem, is to purify our strains of seed so that there may need to be a very small amount of grading. As the preceding speaker has indicated, seed stocks have deteriorated of recent years, more especially, and we no longer have the splendid specimens which were more common years ago. While that has been aggravated perhaps by war conditions, nevertheless it has been true through all of the past generations. And our effort for the future, it seems to me, should be along the lines of improvement in our seed stocks, with the special view of producing uniformity of type in the products. This would eliminate much of the loss incidental to grading practice. In fact, there would be little grading to do if we had our seed stocks brought to the proper standard.

Then there is the feature of productiveness. I wonder if we appreciate just how variable our seed stocks are in this particular. A considerable number of the slides which I have to show to-night will be along this line—some of them diagrammatic, some of them actual scenes in fields of culture.

Then there is the question of resistance to disease. Of all the problems which confront the vegetable grower to-day, one of the most serious is the loss of his crops through disease from one season to another. While we have not made a great deal of progress along the lines of seed selection for disease resistance, nevertheless to my mind it does offer one of the best opportunities for development of any of the lines that we have. It is one of the best solutions that we have for our disease problem. The tremendous losses which accrue from year to year may be very materially reduced without any very greatly increased expense through the use of disease-resistant stocks of seed. The stocks of seed, as I have suggested, are not yet in existence in very many cases, but our and your own experiment stations are working on this problem and we may hope in the course of years, if we press the matter hard enough, that much of the difficulty will be largely overcome through those agencies, through the development of disease-resistant strains.

Mr. Montgomery then illustrated his lecture by a number of slides.

Slide showing typical head of Early Jersey Wakefield cabbage. Pennsylvania has done some good work in the line of standadizing of seed stock.

Two slides showing the variations of plants produced from the different strains of Early Jersey Wakefield seed.

Several years ago the Pennsylvania Station undertook a test of strains of seed obtained from a wide source throughout the United States and Canada. This represents a plant obtained from a certain strain, and preceding slide showed a plant of the same variety but of a different seed stock.

A good specimen plant of the early spring cabbage.

Next slide shows inferior specimen of the same variety but from seed obtained from different sources.

The vitality of seed is of course somewhat a matter of age, a matter of environment, but also of heredity. Here we have the varieties of cabbage seed which we sowed at the same time and under the same conditions, which illustrates the difference in the germinating power of the seed under investigation.

Three slides showing that variation. This flat shows up some strains of seed which were perfectly good along the lines of germinating quality. Of course the strength of germination is not in any sense an index of the resulting crop, because in most cases where the germination may be very good the type of crop may be very inferior.

This represents a general view of the cabbage strain test as carried on by the Pennsylvania Station with Jersey Wakefield and a number of other specimens.

The thing they were interested in particularly in this case was the element of maturity and the uniformity of maturity. When we consider the fact that the price of early cabbage declines very rapidly, and in the course of two weeks, perhaps, the price may decline from one of very satisfactory character to one where it is not profitable to harvest the crop. Now this crop amounted to in some instances as much as 4,000 or 5,000 tons per acre in the first cutting.

This slide more forcibly illustrates the results which are obtained with the Early Jersey Wakefield type—one lot of 26 heads weighed 33 lbs.; 37 heads, 51 lbs.; 22 heads, 31 lbs.; 21 heads, 26 lbs. These were all handled the same. The seed was obtained through commercial stocks from north and south, east and west. The seed was purchased in sufficient quantity to last for the period of three or four years which their experiments covered. The seed each year of the 25 different strains of Jersey Wakefield, that is the strains of each variety, were planted on the same day under the same conditions and in every way were given the same treatment, and that represents the results, not in any cultural practice, but the reason purely in inherent productiveness.

Another illustration of the same point, but with a different early spring variety. We find the same variation running through all the varieties of cabbage.

Here is the record, representing an average of three years. We are not dependent upon a single year's record, but taking the original stock of seed, carry the test through three years, and this represents three years of the same cabbage.

Here is the variation in yield in the Charleston Wakefield. Total harvest record of the Succession cabbage, one of our popular cabbages in which the variation is not so marked. Yet there is a difference of \$10 per ton.

This represents the variation in the Danish Ballhead type. Shows a difference of 14 tons.

I want to discuss briefly the means by which we may get some practical results of the evidence of variation which has been brought up. Everyone here knows the variation which exists in potatoes, which is not at all new, and which you recognize quite well in your selection of potato seed. It shows the progeny in the case of the centre group obtained from the vines shown above, and below we have the resulting potatoes grown by selected tubers of the centre

group, showing how potato varieties will vary in their productive capacity, and suggesting a means whereby we may at least bring about some improvement—by the elimination of the inferior stock of seed.

This represents the beginning of some selection work with a view to overcoming the attacks of the Fusarian Wilt. Two plants side by side in the field, one diseased, the other resistant to disease.

This represents somewhat the same idea, showing the variations, the beginnings, at any rate of some selection work, showing certain plants which are very seriously affected with disease. These plants not grown in diseased fields have given us a start along selection lines.

This represents the drawing of two strains of seed, one on the extreme right being the strain which has been developed through selection and the one in the centre, the common commercial stock of seed.

This represents the resistant variety being grown at the greenhouse at the Station.

This is a view of the Ohio Beauty, the tomato which has been brought this far by selective work as a wilt-resistant variety.

The slides which I show now represent something along the line of disease resistance in cabbage, with special reference to cabbage yellow and represents the work done by Dr. Jones, of Wisconsin. This represents a field of cabbage free from disease, which gives promise.

This is what we call a cabbage-sick field in Ohio. When we consider that the grower has in this case done everything in his power so far as cultural methods are concerned to have a perfect stand and a good crop, we can realize the importance of heredity in the seed.

This slide is thrown on to illustrate the fact that in the case of cabbage yellow the organisms which exist in the soil may persist for a great many years. I don't know whether you are bothered with yellows or not, but here is an evidence of a cabbage grower in Wisconsin who was compelled to give up the culture of cabbage owing to yellows, and in this particular field after giving up its culture, the field was sown to grass and remained in grass for some fifteen years, and then plowed up and planted in cabbage, with the result that you see here. Considerably more than 50 per cent. of the crop has been destroyed as a result of yellows.

This represents the beginning of selection towards disease resistance. In the fields there are occasionally found hearts of cabbage which are perfect and which gave satisfactory solid heads, and it was from these as a basis that selections were made from which resistant strains have been adopted.

This is another illustration showing the disease scattered in one place. There were only three plants found in a field that were of good quality.

This represents the first year's selection work from the selections which were made two years previous to this. The cabbage was carried over and caused to produce seed next year, and this represents the result of some of their selection.

This represents a field of the second generation of cabbage. Notice that on either side where stock was used the cabbage is in good condition so far as disease is concerned, while in the centre practically every plant of the commercial stock seed has been destroyed by yellow.

This is the reverse of the preceding picture in that we have the field of the commercial stock with the row of the selected Hollander strain in the centre.

This represented almost a perfect field of the Danish Ballhead, on a piece of land which the year before had produced no results from commercial seed.

This represents a crop of commercial seed the year following that shown on the preceding slide. This is to show that it was due to no outside environment conditions.

This is the year following, showing a perfect crop, and a yield of 18 tons or so per acre.

I want to come back now very briefly to the method of arriving at practical results. All of these things are of no value unless we can get some practical benefit for it. Our growers have found it practical in many cases, in buying seed stocks to buy a sufficient quantity of seed in advance from different sources, test those seeds out for a year in advance, and those which were satisfactory they could retain for their next year's and succeeding year's growth. Our onion growers, our lettuce growers and in some cases our celery growers have followed that out. The other alternative, of course, is the production of seed strains of our own development, and to my mind there is not any more profitable practice which the average grower can adopt than to develop for himself some special lines of seed. I do not recommend the growing of all kinds of seed, but in the case of special seed, such as onions, tomatoes and things of that sort, the individual grower may bring to himself high strains of seed and adapted to his locality. The vegetable men of the future are the ones who will take advantage of the hereditary strains.

RESOLUTION REGARDING POTATO GRADING.

Resolved that the Ontario Vegetable Growers' Association go on record as favoring an Act establishing the standards of grades of potatoes. We are, however, opposed to the compulsory enforcement of the proposed Act where such enforcement will work hardship to both grower and consumer.

"This Committee recommend that an exception be made in the Act in the case of new potatoes marketed in the months of July and August.

"We as a Committee recommend that a permanent committee be appointed to wait upon the Federal Minister of Agriculture and confer with him on the various phases of the proposed Act before its final adoption."

HENRY BROUGHTON, *Chairman.*

This resolution was moved by Mr. Cooke, seconded by Mr. Bridger, and carried unanimously.

IN MEMORIAM.

A. H. McLENNAN: As you are all aware (I spoke of it this morning) during the past year we lost one man who did a great deal towards the advancement of vegetable growing here in the Province, in a quiet way—more than most of us I think appreciate, more than he probably did himself, because he was the type of man who would not put himself to the front. There were a few of us who knew him very intimately, and I especially, and the privilege has been granted me this evening of bringing this resolution before you:

"That the Ontario Vegetable Growers Association in convention assembled desire to place on record its sincere regret at the loss sustained by the Province of Ontario by the untimely death of our late friend and fellow-member, S. C. Johnston, who served the vegetable growing interests of the Province faithfully and well.

"We hereby bear testimony to the high place Mr. Johnston held in our hearts and affections and desire to extend to Mrs. Johnston our very sincere sympathy in her bereavement."

Moved by Mr. McLennan, seconded by Mr. May, that this resolution of condolence be submitted to Mrs. Johnston and be incorporated into the minutes of the annual meeting. Carried.

MR. McLENNAN then showed some interesting slides on vegetable growing, illustrating the work of insects on plants.

A new departure was the holding of a banquet in the evening which was attended by all the delegates and speakers. The three-minute addresses given by many of those present were greatly appreciated and all were so well pleased with the function that it was unanimously voted that the banquet be an annual feature at our Conventions. The most enthusiastic Convention ever held by the Ontario Vegetable Growers' Association was brought to a close at 11.30 by the singing of our National Anthem.

PRIZE WINNERS IN FIELD CROP COMPETITIONS.

Prize.	Name and Address.	Branch.
CABBAGE:		
DISTRICT No. 1.		
1.....	Cooke Bros., Cataraqui	Kingston.
2.....	Jno. McMullen, Cummings Bridge	Ottawa.
3.....	R. H. Wright, Aylmer, E., Que.	Ottawa.
4.....	John Baker, Cataraqui	Kingston.
5.....	Thos. Purdy, Cataraqui	Kingston.
6.....	R. A. T. McConnell, Aylmer, E.	Ottawa.
DISTRICT No. 2.		
1.....	Geo. Aymer, Humber Bay	Toronto.
2.....	Gordon Fry, Vineland	Clinton and Louth.
3.....	W. A. Broughton, Whitby	Toronto.
4.....	Tizzard Bros., Humber Bay	Toronto.
5.....	Brown Bros., Humber Bay	Toronto.
6.....	T. K. Aymer, Humber Bay	Toronto.
DISTRICT No. 3.		
1.....	N. Sanderson, London, R.R. 7	London.
2.....	G. W. Bycroft, London, R.R. 7	London.
3.....	J. J. Davis, London, R.R. 7	London.
4.....	T. McInnis, 863 Trafalgar St., London	London.
5.....	J. A. Humphrey, Stratford	Stratford.
6.....	C. W. Dempsy, 284 Cambria St., Stratford	Stratford.
DISTRICT No. 4.		
1.....	Chas. Wilson, Sarnia, R.R. 3	Sarnia.
DISTRICT No. 1.		
CELERY:		
1.....	Cooke Bros., Cataraqui	Kingston.
2.....	John Baker, Cataraqui	Kingston.
3.....	C. E. Post, Brighton, R.R. 4	Odd Member.
4.....	Geo. Harris, Belleville	Belleville.
5.....	W. Trick, 561 Echo Drive, Ottawa	Ottawa.
6.....	T. M. Mulligan, Harbord, Ottawa	Ottawa.

DISTRICT No. 2.

Prize.	Name and Address.	Branch.
1.....	Arthur Carlton, Lambton Mills	Toronto.
2.....	P. A. Bell, Humber Bay	Toronto.
3.....	Tizzard Bros.	Toronto.
4.....	F. F. Reeves, Humber Bay	Toronto.
5.....	Jones Bros., Islington	Toronto.

DISTRICT No. 3.

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	J. J. Davis, London, R.R. 7	London.
3.....	T. McInnis, 863 Trafalgar Ave, London	London.
4.....	N. Sanderson, London, R.R. 7	London.
5.....	W. R. Trott, London West	London.
6.....	C. W. Dempsey, Stratford	Stratford.

DISTRICT No. 1.

MELONS:

1.....	Jno. Baker, Cataraqui	Kingston.
2.....	Wm. Trick, 561 Echo Drive, Ottawa	Ottawa.
3.....	B. Lancaster, Cataraqui	Kingston.
4.....	Cook Bros., Cataraqui	Kingston.

DISTRICT No. 2.

1.....	H. M. Rittenhouse, Beamsville, R.R. 1	Clinton and Louth.
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DISTRICT No. 3.

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	Philip Jean, London, R.R. 8	London.
3.....	N. Sanderson, London, R.R. 7	London.
4.....	R. Dengate, Ealing	London.
5.....	Fuller Bros., London, R.R. 7	London.
6.....	A. McInnis, 80 Adelaide St., London	London.

DISTRICT No. 4.

1.....	Louis Tino, Tecumseh, R.R. 2	Tecumseh.
2.....	Victor Robinet, Tecumseh	Tecumseh.
3.....	W. A. Thrasher, Vendome Hotel, Sarnia	Sarnia.

DISTRICT No. 1.

ONIONS:

1.....	Cooke Bros., Cataraqui	Kingston.
2.....	John McMullen, Cummings Bridge	Ottawa.
3.....	B. Lancaster, Cataraqui	Kingston.
4.....	Thos. Purdy, Cataraqui	Kingston.
5.....	John Baker, Cataraqui	Kingston.
6.....	Jas Cox, Ottawa, R.R. 1	Ottawa.

DISTRICT No. 2.

1.....	Brown Bros, Humber Bay	Toronto.
2.....	Arthur Carlton, Lambton Mills	Toronto.
3.....	W. A. Broughton, Whitby	Toronto.
4.....	Tizzard Bros., Humber Bay	Toronto.
5.....	Geo. Aymer, Humber Bay	Toronto.
6.....	F. F. Reeves, Humber Bay	Toronto.

DISTRICT No. 3.

1.....	W. E. Crandall, Ingersoll	London.
2.....	K. Whitlow, London, R.R. 8	London.
3.....	J. Norris, Eagle Place	Brantford.
4.....	Philip Jean, London, R.R. 8	London.
5.....	Fuller Bros., London, R.R. 7	London.
6.....	J. A. Humphrey, Stratford	Stratford.

DISTRICT No. 4.

Prize.	Name and Address.	Branch.
1.....	Fred. Somes, Sarnia, R.R. 3	Sarnia.
2.....	Thos. Hancock, Camlachie	Sarnia.
3.....	Jas. Yeates, Sarnia, R.R. 1	Sarnia.
4.....	Victor Robinet, Tecumseh	Tecumseh.
5.....	W. A. Thrasher, Vendome Hotel, Sarnia	Sarnia.
6.....	Peter Nauwaug, Ind. Reserve, Sarnia	Sarnia.

DISTRICT No. 1.

POTATOES:

1.....	Sydney Baker, Cataraqui, R.R. 1	Kingston.
2.....	Cooke Bros., Cataraqui	Kingston.
3.....	W. J. Downing, Trenton, R.R.	Belleville.
4.....	J. A. Williams, Peterborough, R.R. 5	Peterborough.
5.....	Thos. Purdy, Cataraqui	Kingston.
6.....	Jno. McMullen, Cummings Bridge	Ottawa.

DISTRICT No. 2.

1.....	Tizzard Bros., Humber Bay	Toronto.
2.....	Jas. Dandridge, Humber Bay	Toronto.
3.....	H. M. Rittenhouse, Beamsville, R.R. 1	Clinton and Louth.
4.....	T. K. Aymer, Humber Bay	Toronto.
5.....	W. A. Broughton, Whitby	Toronto.
6.....	R. F. Martin, Beamsville	Clinton and Louth.

DISTRICT No. 3.

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	J. J. Davis, London, R.R. 7	London.
3.....	W. R. Trott, London West	London.
4.....	W. E. Crandall, Ingersoll	London.
5.....	N. Sanderson, London, R.R. 7	London.
6.....	K. Whitlow, London, R.R. 8	London.

DISTRICT No. 4.

1.....	Robt. Ridealgh, Sarnia, R.R. 1	Sarnia.
2.....	H. R. Dent, Sarnia, R.R. 3	Sarnia.
3.....	Fred. Somes, Sarnia, R.R. 1	Sarnia.
4.....	C. Dent, Sarnia, R.R. 1	Sarnia.
5.....	W. J. Craig, Sarnia, R.R. 1	Sarnia.
6.....	Phil. May, Belle River, R.R. 1	Sarnia.

DISTRICT No. 1.

TOMATOES:

1.....	John McMullen, Cummings Bridge	Ottawa.
2.....	John Baker, Cataraqui	Kingston.
3.....	B. Lancaster, Cataraqui	Kingston.
4.....	W. J. Downing, Trenton, R.R.	Belleville.
5.....	I. A. Farquharson, Aylmer E., R.R. 1	Ottawa.
6.....	Geo. Harris, Belleville	Belleville.

DISTRICT No. 2.

1.....	F. F. Reeves, Humber Bay	Toronto.
2.....	S. H. Rittenhouse, Jordan Harbour	Clinton and Louth.
3.....	Sidney Eaton, Humber Bay	Toronto.
4.....	Jas. Dandridge, Humber Bay	Toronto.
5.....	W. S. Eborall, Beamsville, R.R. 1	Clinton and Louth.
6.....	T. K. Aymer, Humber Bay	Toronto.

DISTRICT No. 3.

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	K. Whitlow, London, R.R. 8	London.
3.....	J. J. Davis, London, R.R. 7	London.
4.....	F. G. & C. W. Fuller, London, R.R. 7	London.
5.....	R. Dengate, Ealing	London.
6.....	C. W. Dempsey, Stratford	Stratford.

DISTRICT No. 4.

Prize.	Name and Address.	Branch.
1.....	W. C. Lemire, Tecumseh, R.R. 1	Tecumseh.
2.....	M. May, Tecumseh, R.R. 1	Tecumseh.
3.....	S. Sylvestre, Maidstone	Tecumseh.
4.....	Jos. Mayrand, Belle River	Tecumseh.
5.....	Chas. Wilson, Sarnia, R.R. 3	Sarnia.
6.....	Elie Champagne, Tecumseh, R.R. 1	Tecumseh.

GARDEN COMPETITION.

DISTRICT No. 1.

Prize.	Name and Address.	Branch.
1.....	I. A. Farquharson, Aylmer E., R.R. 1	Ottawa.
2.....	W. J. Downing, Trenton, R.R. 2	Belleville.
3.....	Sidney Baker, Cataraqui	Kingston.
4.....	B. Lancaster, Cataraui	Kingston.
5.....	C. Kitney & Son, Peterborough, R.R. 2	Peterborough.

DISTRICT No. 2.

1.....	Tizzard Bros., Humber Bay	Toronto.
2.....	Arthur Carlton, Lambton Mills	Toronto.
3.....	Gordon Fry, Vineland Station	Clinton and Louth.
4.....	W. S. Eborall, Beamsville, R.R. 1	Clinton and Louth.
5.....	F. F. Reeves, Humber Bay	Toronto.

DISTRICT No. 3.

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	J. Norris, Eagle Place	Brantford.
3.....	Philip Jean, London, R.R. 8	London.
4.....	J. J. Davis, London, R.R. 7	London.
5.....	H. Hachborn, Brantford, R.R. 5	Brantford.

DISTRICT No. 4.

1.....	Fred. Somes, Sarnia, R.R. 3	Sarnia.
2.....	Victor Robinet, Tecumseh	Tecumseh.
3.....	Chas. Wilson, Sarnia, R.R. 3	Sarnia.
4.....	W. A. Thrasher, Vendome Hotel, Sarnia	Sarnia.

CANADIAN NATIONAL EXHIBITION, 1918.

Prize.	Name and Address.	Branch.
CELERY:		
1.....	J. J. Davis, London, R.R. 7	London.
2.....	Geo. Harris, Belleville	Belleville.
3.....	Tizzard Bros., Humber Bay	Toronto.
4.....	Art. Carlton, Lambton Mills	Toronto.
5.....	C. E. Post, Brighton, R.R. 4	Odd Member.
6.....	Jones Bros., Islington	Toronto.
7.....	I. McInnes, London	London.

ONIONS:

1.....	Brown Bros., Humber Bay	Toronto.
2.....	W. E. Crandall, Ingersoll	London.
3.....	Geo. Aymer, Humber Bay	Toronto.
4.....	F. F. Reeves, Humber Bay	Toronto.
5.....	J. McMullen, Cummings Bridge	Ottawa.
6.....	Art. Carlton, Lambton Mills	Toronto.
7.....	Tizzard Bros., Humber Bay	Toronto.

POTATOES:

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	T. K. Aymer, Humber Bay	Toronto.
3.....	John McMullen, Cummings Bridge	Ottawa.
4.....	H. M. Rittenhouse, Beamsville, R.R. 1	Clinton and Louth.
5.....	W. J. Downing, Trenton, R.R.	Belleville.
6.....	Phil. May, Belle River, R.R. 1	Tecumseh.
7.....	R. F. Martin, Beamsville, R.R. 1	Clinton and Louth.

Prize.	Name and Address.	Branch.
TOMATOES:		
1.....	T. K. Aymer, Humber Bay	Toronto.
2.....	W. J. Downing, Trenton, R.R.	Belleville.
3.....	Geo. Harris, Belleville	Belleville.
4.....	Sydney Eaton, Humber Bay	Toronto.
5.....	J. J. Davis, London, R.R. 7	London.
6.....	W. S. Eborall, Beamsville	Clinton and Louth.
7.....	M. May, Tecumseh, R.R. 1	Tecumseh.

CABBAGE:

1.....	T. K. Aymer, Humber Bay	Toronto.
2.....	Geo. Aymer, Humber Bay	Toronto.
3.....	J. A. Humphrey, Stratford	Stratford.
4.....	Tizzard Bros., Humber Bay	Toronto.
5.....	Brown Bros., Humber Bay	Toronto.
6.....	J. Baker, Cataraqui	Kingston.
7.....	Jno. McMullen, Cummings Bridge	Ottawa.

MELONS:

1.....	G. W. Bycroft, London, R.R. 7	London.
2.....	J. Baker, Cataraqui	Kingston.
3.....	W. Trick, Ottawa	Ottawa.
4.....	B. Lancaster, Cataraqui	Kingston.
5.....	Cooke Bros., Cataraqui	Kingston.
6.....	Philip Jean, London, R.R. 8	London.
7.....	A. McInnes, London	London.

CENTRAL CANADA EXHIBITION, OTTAWA.

Prize.	Name and Address.	Branch.
CELERY:		
1.....	Geo. Harris, Belleville	Belleville.
2.....	G. W. Bycroft, London, R.R. 7	London.
3.....	C. E. Post, Brighton, R.R. 4	Odd Member.
4.....	Art. Carlton, Lambton Mills	Toronto.
5.....	Tizzard Bros., Humber Bay	Toronto.
6.....	F. F. Reeves, Humber Bay	Toronto.

ONIONS:

1.....	W. E. Crandall, Ingersoll	London.
2.....	Brown Bros., Humber Bay	Toronto.
3.....	Tizzard Bros., Humber Bay	Toronto.
4.....	Art. Carlton, Lambton Mills	Toronto.
5.....	Geo. Aymer, Humber Bay	Toronto.
6.....	Cooke Bros., Cataraqui	Kingston.

POTATOES:

1.....	R. F. Martin, Beamsville, R.R. 1	Clinton and Louth.
2.....	T. K. Aymer, Humber Bay	Toronto.
3.....	W. J. Downing, Trenton, R.R. 2	Belleville.
4.....	G. W. Bycroft, London, R.R. 7	London.
5.....	W. R. Trott, London West	London.
6.....	Jno. McMullen, Cummings Bridge	Ottawa.

TOMATOES:

1.....	Geo. Harris, Belleville	Belleville.
2.....	T. K. Aymer, Humber Bay	Toronto.
3.....	S. Eaton, Humber Bay	Toronto.
4.....	W. J. Downing, Trenton, R.R. 2	Belleville.
5.....	J. McMullen, Cummings Bridge	Ottawa.
6.....	Fuller Bros., London, R.R. 7	London.

CABBAGE:

1.....	J. Baker, Cataraqui	Kingston.
2.....	Tizzard Bros., Humber Bay	Toronto.
3.....	Brown Bros., Humber Bay	Toronto.
4.....	Jno. McMullen, Cummings Bridge	Ottawa.
5.....	Gordon Fry, Vineland	Clinton and Louth.
6.....	Cooke Bros., Cataraqui	Kingston.

Prize.

MELONS:	Name and Address.	Branch.
1.....	Philip Jean, London, R.R. 8	London.
2.....	G. W. Bycroft, London, R.R. 7	London.
3.....	W. Trick, Ottawa	Ottawa.
4.....	Cooke Bros., Cataraqui	Kingston.
5.....	A McInnes, London	London.
6.....	J. Baker, Cataraqui	Kingston.

WESTERN FAIR, LONDON.

Prize.

POTATOES:	Name and Address.	Branch.
1.....	W. J. Downing, Trenton	Belleville.
2.....	W. R. Trott, London West	London.
3.....	T. K. Aymer, Humber Bay	Toronto.
4.....	G. Bycroft, London, R.R. 7	London.
5.....	H. M. Rittenhouse, Beamsville	Clinton and Louth.

TOMATOES:

1.....	Fuller Bros., London, R.R. 7	London.
2.....	F. F. Reeves, Humber Bay	Toronto.
3.....	T. K. Aymer, Humber Bay	Toronto.
4.....	Geo. Harris, Belleville	Belleville.
5.....	J. J. Davis, London, R.R. 7	London.

ONIONS:

1.....	Brown Bros., Humber Bay	Toronto.
2.....	K. Whitlow, London, R.R. 8	London.
3.....	Geo. Aymer, Humber Bay	Toronto.
4.....	F. F. Reeves, Humber Bay	Toronto.
5.....	W. E. Crandall, Ingersoll	London.

MELONS:

1.....	Sanderson Bros., London, R.R. 7	London.
2.....	G. Bycroft, London, R.R. 7	London.
3.....	Fuller Bros., London, R.R. 7	London.
4.....	McInnes Bros., London	London.
5.....	R. Dengate, Ealing	London.

CABBAGE:

1.....	T. K. Aymer, Humber Bay	Toronto.
2.....	J. A. Humphrey, Stratford	Stratford.
3.....	Brown Bros., Humber Bay	Toronto.
4.....	J. J. Davis, London	London.
5.....	Geo. Aymer, Humber Bay	Toronto.

CELERY:

1.....	J. J. Davis, London, R.R. 7	London.
2.....	Geo. Harris, Belleville	Belleville.
3.....	C. E. Post, Brighton, R.R. 4	Odd Member.
4.....	G. Bycroft, London, R.R. 7	London.
5.....	Art. Carlton, Lambton Mills	Toronto.

KINGSTON INDUSTRIAL EXHIBITION.

Prize.

ONIONS:	Name and Address.	Branch.
1.....	W. E. Crandall, Ingersoll	London.
2.....	Brown Bros., Humber Bay	Toronto.
3.....	Geo. Aymer, Humber Bay	Toronto.
4.....	F. F. Reeves, Humber Bay	Toronto.
5.....	Art. Carlton, Lambton Mills	Toronto.

TOMATOES:

Prize.	Name and Address.	Branch.
1.....	Geo. Harris, Belleville	Belleville.
2.....	T. K. Aymer, Humber Bay	Toronto.
3.....	F. F. Reeves, Humber Bay	Toronto.
4.....	C. W. Dempsey, Stratford	Stratford.
5.....	W. J. Downing, Trenton, R.R.	Belleville.

CELERY:

1.....	C. E. Post, Brighton, R.R. 4	Odd Member.
2.....	Art. Carlton, Lambton Mills	Toronto.
3.....	Geo. Harris, Belleville	Belleville.
4.....	J. J. Davis, London, R.R. 7	London.
5.....	G. W. Bycroft, London, R.R. 7	London.

POTATOES:

1.....	W. J. Downing, Trenton, R.R.	Belleville.
2.....	T. K. Aymer, Humber Bay	Toronto.
3.....	R. F. Martin, Beamsville	Clinton and Louth.
4.....	G. W. Bycroft, London, R.R. 7	London.
5.....	Cooke Bros., Cataraqui	Kingston.

Ontario Department of Agriculture

ANNUAL REPORT

OF THE

Corn Growers' Association

1918

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

Printed by
THE RYERSON PRESS

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour
the Report of the Corn Growers' Association for 1918.

Respectfully submitted,

GEO. S. HENRY,

Minister of Agriculture.

TORONTO, 1919.

ONTARIO CORN GROWERS' ASSOCIATION

OFFICERS FOR 1918-1919

<i>Honorary President</i>	R. W. KNISTER, Blenheim.
<i>President</i>	L. L. GREGORY, Chatham.
<i>First Vice-President</i>	WALTER ANDERSON, Amherstburg.
<i>Second Vice-President</i>	STEWART McDONALD, Pt. Lambton.
<i>Treasurer</i>	J. H. COATSWORTH, Kingsville.
<i>Secretary</i>	P. L. FANCHER, Chatham.
<i>Superintendent</i>	FRED URE, Maidstone.

DIRECTORS.

NORM. DUMOUCHELLE, Windsor, No. 1.	A. R. EVERITT, Chatham.
A. OUELETTE, Walkerville.	DAVID WILSON, Ridgetown.
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HUBERT WILSON, Maidstone.	EARL MONTGOMERY, Dresden.
B. R. COHOE, Woodslee.	FRANK WEAVER, Turnerville.
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F. G. BREEN, Comber.	DAN BUCHANAN, Thamesville.
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JNO. PIERCE, Staples.	STEWART L. PEARCE, Wallacetown.
THOS. HEATHERINGTON, Wheatley.	HOWARD ZAVITZ, Ilderton.
A. L. SHAW, Tilbury.	R. H. McLENNAN, Aylmer.
J. B. RHODES, Chatham.	

FINANCIAL STATEMENT TO AUGUST 26, 1919

Receipts.

Balance from last year	282 03
Legislative grant	500 00
Essex County grant	250 00
Kent County grant	250 00
Municipal grants	370 00
Gate receipts	551 37
Space in Armouries sold	272 00
Advertising in prize list	233 50
Membership fees	145 50
Building, light, heat, etc., furnished by City of Chatham (estimated)	150 00
Donations	20 00

Expenditures.

Cash paid out for prizes	\$1,052 25
Printing and advertising	560 73
Directors' expense	337 83
Expense of lecturers and judges	148 00
Postage and exchange	37 86
G.W.V.A. Band	54 00
Jeweller's account for cleaning and engraving trophies	28 62
Express	50 99
Photographer	3 00
Stationery	6 20
Stenographers	30 00
Treasurer	50 00
Auditors	8 00
Janitor	20 00
Sundries	8 89
Building, light, heat, etc., for corn show furnished by Chatham	150 00
Balance on hand	478 03

Total receipts \$3,024 40

Total expenditures \$3,024 40

BYRON A. SMITH, }
HARRISON M. PETERSON, } *Auditors.*

Ontario Corn Growers' Association

ANNUAL CONVENTION.

The Eleventh Annual Exhibition and Convention of the Ontario Corn Growers' Association was held in the Armouries, Chatham, on February 11-14, 1919.

The number of entries was much larger in the provincial classes of corn than in the previous two years. The quality and uniformity were excellent. This shows marked improvement.

In the grain and Small Seed section the number of exhibits were much larger than in any previous show. Mr. A. W. Mason, Judge, said, "I do not think I have ever seen anything better in the way of seeds for variety, grading, and brightness of samples generally. In the matter of small seeds, they were better than any No. 1 Government standard you can get."

The attendance was large, a little larger than in 1918.

In opening the proceedings the President, Mr. Lester Gregory said: You all know me well enough to know that you will not be inflicted with anything that could at all be described as an address. I am not a public speaker and always feel more at home in action than in speaking, but I cannot let this opportunity pass without a few remarks.

We have reason to feel proud of this year's show in the matter of small grains and corn. It would be impossible to express in words the discouragement that the executive and directors and members of the Association have been up against the last three previous years in the matter of weather conditions and other things that had to be contended with in connection with the arrangements. However, I think the worst is past and I know of no reason why this show should not, from now on, grow until it is the largest seed show in the Dominion of Canada.

The Corn Growers are pleased to see the interest that is being taken in the exhibits and in the afternoon meetings. You came here to hear the speakers so I will dispense with further remarks.

The Mayor of the city, MR. W. A. HAMMOND, then gave a hearty address of welcome to the Members of the Association.

THE CHAIRMAN then introduced Dr. Creelman, who had kindly come to fill the appointment of Hon. Mr. Henry, Minister of Agriculture, who was unable to be present.

ADDRESS.

DR. CREELMAN, PRESIDENT O.A.C., GUELPH.

It is always a privilege and pleasure for me to come into this southwestern part of the Province of Ontario. As the Mayor of the city said, you have a peculiar condition of things here, by virtue of your soil, and by virtue of your climate which makes it different from any other part of the Dominion of Canada, certainly from any other part of Ontario. And so we come from the snow belt of Guelph into the banana belt of Canada.

I came here to represent the Department of Agriculture and to see what more we can do to further the interests of the people in this part of the Province. I came to see your Corn Show, to see if you are keeping up the average or improving a little over the seed of last year, and to congratulate you, as I have been congratulating myself and my own college staff and college students, because the war is over and we can get back to our work again.

What seem to me to be the outstanding needs, not only of this part of Ontario but all Ontario in general, are, for one thing, better roads. We have to seize this thing with a firmer grasp and with bigger vision than we have. I think we farmers have been very long-suffering to stand for bad roads so long. To be sure we had corduroy roads. They got us out to the main roads and to the mill, but that day has gone by, and we should now have the very best roads to bear us out from our homes. It is equally as necessary as it is for us to have roads for the city people to do their business on.

What is our part in connection with it? The Government is liberally contributing to it. They want to give the people what they want. They are giving quite a percentage of the cost of the roads. What is our attitude, our duty? Your duty is to see that any road which is built, however short, should be a first-class road whether it runs before your place or mine. That is what we haven't done. I wonder if anyone can give an estimate of the thousands and thousands of loads of good gravel that have been put down on poor roads and we have crossed over these roads and crushed them down, year after year, with the stones below and mud on top. No drainage. I wonder how many of all the people who are interested in the good roads question in the community have ever given much thought to what ought to be done in that relation, or have gone to the Council and said "I do not live on this road, but I want it done right, because when you come to my road I want it done right."

I have never forgotten a good man we used to call "Good Roads Campbell." I remember hearing him in London, and about all I can remember of what he said was that there were three things necessary to make good roads and the first was drainage, and the second was drainage, and the third was drainage. Just drain, drain, drain. You should drain wherever a road is put down.

Now in this country, where you have not so much snow, I want you to agitate for better roads, and see that you are allowed to do your part. You, as good southwestern farmers, should raise your voice, and understand that talking won't go very far toward getting good roads started; there is nothing like example. And a good bit of road well put down reminds you every time you travel over it that it is a good road and a credit to the community.

LIVESTOCK.

You of course do not give so much attention to your livestock as they have been doing in some eastern communities. I am not finding fault with you for that. But you must remember this: No agricultural county where you are raising corn can be complete without good livestock to eat up the surplus crop, and I have never known a man yet who over-stocked himself and made a failure in farming. I have known men to fail through not stocking. What I mean to say is that in the old country—and I was there in September and October last year—they told me there: "We are not worrying so much about the price if we can break even—if we can break even the cost of livestock and the cost of feed, if we can break even and have the manure to the good. We will continue in the stock business and

make good in the days that are to come. We don't realize the importance of farm-yard manure. The more stock, the more grain, the greater the ability to raise crops of bigger proportion. You have stock to eat up the surplus but you are at the same time replenishing the soil. I want you to use more stock, but I want you to get into the purer breeds at the same time. I have known good grade cows to be as good as any other cows as far as milk supply is concerned, but no grade cow is better than a pure bred animal. Why? You will find, if you trace it back, that every good grade cow came from pure breed stock.

I had a talk with William Duthie, of Fergus, Scotland, on Lord Aberdeen's estate. Mr. Duthie is one of the most successful of the cattle men of Scotland. I was fortunate enough to be present at one of his sales while I was in the old country last fall. He brought out some of his young cattle six to eight months old. The proceeds of the sale were \$152,000 in less than an hour. The first calf was started at \$2,000 and went up to \$21,000, all because of the breeding that William Duthie had in that calf through fifty years' continuous breeding and selection.

I said, "What do you consider has made you such an outstanding Shorthorn breeder in this part of the world?"

"I don't know," he said, "unless it was the fact that I was never contented with anything but the best." "And," he said, "I have allowed cows to be fallow because I did not have the best sire, and the best is none too good. A man would be wasting his time to do anything but raise the best. And every stock man should be honest. Now, when I stick up a six months old calf which nobody can tell from its looks what it is going to be, my neighbors have justified me in my faith in good breeds, when they will give me \$21,000 for a calf, but when they saw the mother and sire it had, they had faith in me. That is a fair kind of a life to live, and I ought to be satisfied that my neighbors have such confidence in me that they will buy a little immature calf for \$21,000, the biggest price ever paid for a calf. It is the proof that they believe I have stood up to my ideal of nothing but the best for me."

There is too much immature stuff going into the stock yards, too much inferior, under-bred and under-fed. Give your children heartier support by starting in with one good type, whose parents are worthy.

CORN CULTIVATION.

I was reading some of my old notes, recently, that I took at College thirty years ago. At that time our professor said, "You cannot raise corn unless your rainfall goes 20 inches in the earth." I know they are raising good corn in arid parts of Arizona, where they haven't 10 inches of rainfall in a year, and in South Arizona they raise good crops where they have not 8 inches. It is all done by cultivation.

We have found that we can raise good crops if we cultivate properly. We have found that we can retain the water from the snow and the few rains they get through the rainy season, and keep it so it will not evaporate, and can get good crops, and they are doing it in just that way. We know that the more we cultivate the better it is for the corn. If there is a better way to cultivate your land to get the best results, you should know about it. Discuss the matter with your neighbors and with your Agricultural Representative. Get out of the habit of wasting a good man's time and horse power on poor cultivation.

DRAINAGE.

The demand is growing greater and greater at Guelph for surface plans.

In 1905 we started out in a small way and we find now that our boys, going out and making blue prints as to how the land should be drained, with heavy drains and light, have drained 2,000 acres of land in Ontario, not including other plans we have given. And letters are coming in showing where men have doubled and trebled their crops, and also virgin soil and swamps that have been drained have yielded large results. These fields have been drained and brought into cultivation in the Province of Ontario. Now they still tell us that there is a large amount of swamp land in this district. Now, listen; maybe that is on your own farm and you want to get it drained. Go and see your neighbor who has drained his land, talk with him seriously. Then you should not be five years older before you get it done, if it is worth while. If it is worth while, get at it. Take advantage of the township law which will loan you the money for twenty years to get it done. If your land yields you only two-thirds of a crop it would be worth while to know whether it would be advisable to put a mortgage on your farm and get a full crop. It will pay you in the end.

WEED AND INSECTS.

We have not much patience with bugs. We older people do not go in for investigation, therefore I would say to you, encourage that sort of thing in the boys and girls and the school teacher in your district. While they are young their time is not worth very much and they are willing to go out and look for these. We call it "Nature Study." I had not much patience with that at first, but the boys have learned to make tests of plants and seeds. They can do it as well as any of you, then why not go into the bug question too. We must have educated school teachers. If you just take a little girl school teacher who goes through normal but knows nothing about these questions, you can't expect her to train them. Last year we had over 300 school teachers down at Guelph, spending their summer holidays at the College just that they might have a knowledge of farm conditions and be able to talk to the pupils in an intelligent manner. I would rather risk five or ten dollars more out of my pocket on a teacher who could bring up my children with a reasonable knowledge of the growing things about them, because when children come to your time and mine they won't bother about it. We must educate them and interest them in these matters while they are young.

SEEDS.

I am delighted to see that even with the bad seed you had last year you have made such a show by the corn grown in 1918. All honor to the people of southwestern Ontario who did not throw up their hands! You went ahead and culled the best seeds you could and you made the best show you could. We, in the other parts of Ontario, depend upon you for the seed that will supply crops for our feed and food. If we cannot make our ten or eleven tons per acre for our silo we are going to lose out, because our business in this country is worth \$25,000,000 for export trade and it may go right down if the corn crop fails. Our export trade depends on you. I saw some beautiful corn up there, in 60 cobs. Five or six years ago you could not get that in Ontario any place. You are learning and learning fast, but do not be satisfied.

In other parts of the Province around Guelph we have clubs for almost everything. We used to say "Let the Government take it up," but what's the

matter with you taking up these improvements you desire. Any ten men who will put their heads together and think together long enough have the ability to do anything, providing they are right to begin with.

There should be a corn club in every little place. You ought to be thinking corn, and go through your corn patch and your neighbors' and see that you have a good crop and not be satisfied with anything but the best.

THE BOY AND GIRL.

Once before I made the mistake of speaking here and I spoke too long, and I made a mistake here again in speaking about the social life of the country, and somebody got up and told me I was behind the times. I do not intend to make either of those mistakes again, but I am just going to say that if we are going to keep the boys and girls on the farm we must bring about better conditions. I know that there is a greater interest in farming matters because I get more letters from young chaps fourteen and fifteen years of age, wanting to know when they can come to College, because, they say, they are going to be farmers and they want to know what is what. A great many belong to pig clubs and calf clubs in the little school-houses. You can learn a lot from a calf club, but they can't make that a business. And after the day's work is over there is the long evening to be spent and the young chaps and young girls must have entertainment. In this part of the country you have a lot of clubs and are doing well, but I want you to take still more interest in the school-house. Make it a centre for the young people to meet in and have a good time. Light the lights and let them have some fun. Get able people to come in and speak to them, though you will find plenty of talent right among your own young people. Lots of lads who have come to the cities and become lawyers and professional men would have remained on the farm and made good if they had had an opportunity to say something in debate. They were filled up with ideas and had to get them off their chests. We would have better county councils and better city councils if we had men who could get up on their feet and say what they wanted to, and say it well.

We are trying, in the Department of Agriculture, as far as we can, to plan and publish pamphlets and reports and get experiments started to prove and consolidate our ideas. We want to get people interested. If there is anything that we can do for you, more especially in connection with the furtherance of your corn interests, I hope you will let us know.

CORN IMPROVEMENT.

PROF. L. C. BURNETT, OF THE IOWA STATE COLLEGE OF AGRICULTURE.

It affords me a great deal of pleasure to come over here from our middle western country to what we know as the east there. I have come, not to tell you about corn, with which you are familiar, but about some of the things which we have done and of some of the ways in which we have done these things with corn.

I really feel almost familiar with this country. Until a few years ago I lived about 150 miles west of here, in Michigan. The corn which I see here to-day is a vast improvement from what my father used to grow and cut by hand, and go up and shock it by hand. We husked it on our knees, hauled it into the barn, cribbed the corn and fed it to the hogs.

CORN SHOWS.

Before I discuss that part of the work which we have done at the station, I wish to talk to you folks a little while about the corn show which we have conducted annually at our own town and college.

I remember, in 1905, our earliest shows. We had about a dozen leaders and they brought their corn and a few of the younger fellows along with them. Now they took all the prizes, and the younger chaps, when they began to bring in their corn, couldn't stand up against them, so we had to alter the prizes. A man who has taken two blue ribbons cannot win anything but ribbons thereafter. The money prizes go to the amateur shows, which are held two in the same room. All this has led to the development of quite a distinct type of corn.

Going in there in 1903, you would find fifteen to twenty varieties coming in to the Corn Show, but one of them invariably was winning all the prizes.

In 1906 we offered prizes for Johnston Co. White, Iowa, Leaming, Yellow Dent and such varieties from the southeast portion of the State. Now they are almost dropped except the Yellow and White corns and Johnston Red, and from the north Silver King is the favorite. We have done this by natural selection, and out of all these has evolved the matter of the score card. Our score card that we use at our show is quite different from what we had a few years back.

JUDGING CORN.

When a judge picks up an ear of corn he asks four questions:

1. *What is the yield?* And out of all the experience that has been gained by all these men who came in, these ten men and the men they brought with them, now some 300, the first question they ask is "What is the yield?" Now we don't go in county limits. The men from the northeast district judge the corn from the northwest and the men from the southeast the corn from the southwest and vice versa. These men all ask the one question first: Will that corn yield? Is it big enough for our community? Has it constitution? Is it full in the ear, are the sides cylindrical, does it carry full sized corn? From that the men who have had experience in growing corn can judge the yield to the acre.

2. *Will it mature?* Is the ear too long or too big? That question is largely answered according to climate. Our normal first killing frost in the southern and central parts is about October 1st, and the Show is in December. The judges look to see if the tip can be broken from the kernel. Is it chaffy or does it come clean? Is the germ bright or is it yellow and somewhat cheesey? In other words, Did the corn get ripe?

3. The next point these men look for is: *Does this corn show improvement?* Does it look any better than when we came four or five years ago? There comes the matter of the finer points of the ear. Has some man spent his time and brains to produce a better ear? We have a few men who have made fine showings of corn. The rows are straight, the butts and tips are well formed. These men are well known for that. Men will walk into the show, where there is nothing but numbers on the exhibits and pick out Mr. Seller's, Mr. Plumber's Mr. Ackley's, Mr. Hunt's. These men have made a name for themselves and their corn. And this gratifying result comes from selection and care. Take the corn from the southern portion. Proudfoot and Cryder got their first seed from central Illinois, but in ten years they put a stamp on it and made it known. So the points they bring out answer: Does it show improvement? Is it a corn that has got some

breeding back of it? It is like livestock. You know the necessity of having a standard for the market. In corn also we must have a standard. If you can produce a certain standard you know that pretty much of your crop will be up to that standard.

4. The last question they ask is: *Will it grow?* Now, seed corn that won't grow is absolutely useless. Twenty-five points are given for each one of these questions and it is a good practice that if the corn falls down below zero on any one of the questions it will be thrown out. Will it yield, does it mature, does it show improvement, and will it grow? If it loses on any one of these points it is thrown out.

This Corn Show has done wonders for the corn crop of the State, too. It has unified the crop until in a season like this year, compared with the season of 1906, which was quite similar, I suppose the majority of our corn struck the Chicago Market as No. 5, and to-day our corn will go on the market as No. 3, both yellow and white. The Corn Conventions have led to an interest in corn which has raised our yield approximately three bushels per acre, on an average. Figuring our ten million acres of corn, that is 30,000,000 bushels. That proves the value of our Corn Fairs.

The story I have been telling you is not something which has been preached out from the institution to the men, but the gradual growth in that State of the idea that the men have, and they have realized their ideal by development.

CORN IMPROVEMENT.

While the Corn Growers' Association has been doing this work through the State, not alone in the school but each man in his own community, we have done some work in corn breeding at our own institution. It is rather a simple story. Practically all the progress we have made has been by ear-row selection and breeding.

By that I mean that a certain percentage of ears—some 500 ears—were hung up in the seed house on hangers of this description, made out of wire. They would probably be handier for you to get than for us, because you are nearer the foundries.

We planted fifty hills from each ear and these were numbered, and the remaining corn was left on the cob and numbered and put away until fall when we harvested this corn. The corn was brought into the cribs, and brought into a room with a cement floor and there we had a little Corn Show. We had the mother ears brought down and we had the score card which we change from season to season. Last year we gave about 50 points for maturity, 40 points on yield and very little on the fancy points at all. This year the score card has changed because maturity was not a factor in our crop. We are giving 50 to maturity, 20 to type, to fancy points and seed type, and the other 30 points are distributed between shelling percentage and kernel value of the corn.

We did not score the mother ear; we scored the bushel we brought in from the field. This matter of yield is measured on the scales, and the mother ears are weighed, and when an ear is scored it is scored by what it will produce.

In 1907 we started this work, and during the earlier years it went along as such experiments do. In 1909 one ear out of 300 showed up which matured every year it was produced. In 1909 we had a wet season, and it froze up and we did not get it in until spring, and this one out of the 300 (which is known as our No. 203) matured every year and was the highest producer. These things seldom go together but this No. 203 corn gradually increased. In fact it did so

well we put in nothing else in 1914; but we were not satisfied with the appearance of it so we had to make some changes. We had to use more brains on it, and the first thing we knew we had it late; and in 1917 we had another year like 1909, and then we found one ear to be matured out of what we thought was early. It only stood third, so I think we will be very careful in getting our yield too heavy in that section again. It matured too late. I hope we have learned a lesson from this third trial. That is one instance where the corn went right back to its old score after we had been using it for three years.

TESTING FOR SEED.

With these 500 ears which we have, we take this same score card which the Iowa Corn Growers use, only we switch it around the other way. We say: Will it grow? Because, if it will not, we do not want to bother with it. There are many means of testing, but I think about fifty per cent. of the Iowa farmers to-day use what is about the simplest and cheapest process, what is known as the rag doll.

I do not believe that anything has made the Iowa farmer so much money as testing his seed corn, and he did not learn to do that until less than ten years ago.

STANDARD CORN.

The people have learned the advantage of using a standard corn through coming to the Corn Show, seeing what others have done and then trying it out for themselves. We have asked the men and found out that they are using a standard corn because Sam Jones was using it, and it didn't cost him anything to get it. That standard corn cost no more to raise or to cultivate.

The next question we ask of each ear is: Will it yield? I told you a few minutes ago how we answered that question. We plant in our field 16 rows out of 20. Then we have the four mother rows. Will the 16 rows mature and give as good results as the reserve seed we have on the mother corn? In that way the question is answered.

We leave the breeding question out until we have gone all through the rest.

Does it show improvement? The question is answered definitely by the better appearance of the ear. Will it grow? is answered by the germination test. Will it yield? is answered by the test in the field; and will it mature? is also proven readily. These three questions are very vital.

A FARMER'S METHOD.

The next step we have is to get rid, in Iowa, of 90 per cent. The best 10 per cent. is kept and planted as an increase plot for seed. This No. 119 was used with only the very best success in 1915. No. 119 now covers our entire farm. Next year it will be sent out. Probably through our experimental association, it will be sent out to 600 or 700 farmers. It is almost impossible for farmers to handle small lots of corn. We have tried to bring that work up to make the farmer feel he should be his own executive, but there are only about thirty-five farmers over the State, leaders in corn production, who are doing this for themselves, and who claim it is profitable and interesting. It is interesting to them because they are interested in better corn and are willing to do this ear-row work. That is the way they are improving. They are eliminating a lot of the work. They take about 50 ears, but instead of planting 50 hills they plant 25 in a row. They plant these some Saturday when the boys are home, in rows, usually around one side

of the corn field. Most of them are careful to get it near to their pasture. Then when it comes to the last of August or September, when we have a dry, hot spell (and conditions are, I suppose, not so different here from there), they feed out corn for the cattle. Mr. Farmer goes down and eliminates about 30 rows of corn and feeds this to his cattle, then he goes to the granary and throws out some to the horses. But he has 20 rows left. He will husk this and put it into bran sacks and he will take the mother ear and will shell the best 10 in the 50 old ears and he will plant about an acre of this corn. I think I could name over seven or eight men who have very materially increased their yield of corn and the quality of the corn on their farms, because they did not stick strictly to the show-grade type on the mother ear, but dealt with the progeny that they were producing. That is a very simple method of improving corn. The men who are doing this are well known throughout their community, and their seed sells for a dollar or two more than the average corn and people are glad to get it. The purchasers know they can go right out on these men's fields and see what they are getting.

LOCAL SEED.

It is not well to get seed corn from too great a distance away. We have had one experiment on this (it is hardly complete yet). We have taken corn from practically the same latitude across the State. Five samples were taken across the north end and five across the south, a bushel in each sample, and the bushels were split into five lots and each of five men had samples of the other fellow's corn. The experiment is just breaking half-and-half as to whether a man's own corn would be better than what he got or whether there was one man in the north section who had done something to over-shadow the climatic conditions. The experiment is not complete, as I say, but I am well satisfied that in only a few instances will it be advisable to move corn more than two counties in our State.

The work of our experimental association in the testing of this corn all over the State has been a great help both to the farmers and to the institution, in that the tests which we are able to make have been made directly under farm conditions, by the farmer himself, so we are not handicapped by the distance of longitude or latitude across the State.

Q.—Would you mind explaining the manipulation of the rag doll?

A.—The corn that we are going to test, if you are out on the farm of course, would be laid out on the fence board, on nails driven in the fence board. A sample is taken from the first ear, and a label pinned on the butt of the ear, and a similar number on the sample. The rag doll is wet and stretched out on a board so the kernels will stick a little. The kernels are picked six from an ear, the ear turned around and one kernel taken from the side, another from the middle, the tip, and so on. That is ear No. 1. We have a ticket here with a number, the number of the hanger and the number of the doll on it. This is placed on the ear of corn and a duplicate is placed in the doll in position No. 1, and so on. When the doll is full it is rolled very loosely, the looser the better. The dolls are then placed in a bucket, crated in cross-ways and soaked for an hour. After the water has been poured off, the bucket is filled up with old newspapers and turned over. If there is any water left it runs away. This is set around the furnace at a temperature of about 55 degrees. If you want to get through quicker increase your temperature, but if you leave it down between 50 and 60 degrees when this corn germinates, combustion takes place and it will produce what heat is necessary itself. You could put your hand in the bucket and it should feel about as warm

in there as new milk. You can handle about 800 ears in a good half-bushel bucket, and a half-bushel bucket won't take any more space than a piano stool or a furnace scuttle, and we have proven it to be the cheapest way to handle corn because it is done in the smallest space. You don't have saw-dust bags to look after or patent testers.

Do not use cheese cloth to make your dolls, as the roots will grow through the loose threads and you cannot unroll the dolls. Old bleached muslin is best because it will take water better than any other. In rolling, you will want to have a little extra space in the centre of the doll, so wind it loosely, and when you get to about the last two sets of kernels, lay it very flat and turn in the kernels a trifle and it will become tapering, as it turns in. Push the kernels toward the centre more. Up until about three years ago we used to put three rubber bands on for fear the kernels would come off, but we found that was entirely unnecessary because they never fall out if they have been well dampened, and the rubber bands had to be removed to avoid sweating.

Q.—Can you tell about the vitality of the seed by that?

A.—Yes, and no. Some people say that the secondary roots on the kernel tell something. In my own work I either take them or do not take them. I do not make any discrimination in the root. You can tell by your second or third testing what you are going to take for seed and how much you have to have. Take a season like last year, when you cannot buy seed, and you planted a lot of seed that tested lower. We used some that only tested five strong kernels.

A.—There are three things essential—heat, oxygen and moisture. If you plant where it is too cold your growth is slow. If you plant where it is too wet, no oxygen can get to it and your growth is slow. Where it is too dry, it would not grow either. All three must be present in their proper proportions. You will notice it is essential to change the depth of planting as you go on to a piece that is wetter, because your oxygen will not go down. I know with my own, I planted five or six acres shallow because I thought it was going to rain. It did not. I missed the rain by six miles. Corn planted the next day and planted deeper, did much better.

Q.—Do you use tip corn for seed?

A.—We do not at the station, because they are not satisfactory with our planter. Experiments have shown that the butt kernels will grow one and a half times more ears than tips. I think it is due to the more rapid start. If the ear should happen to stand up straight in the fall and the water runs down into the shocks and freezes around the ear, you need to watch closer the last half-inch to see if anything has happened.

Q.—In inspecting seed corn in the field do you ever make a difference when there's two ears on a stalk?

A.—We have made up our minds we do not want more than one good ear on a stalk. Two eared stalks usually produce a coarse grade of corn and less per acre.

Q.—Can you tell me what is the male and what the female part of the corn?

A.—The kernel is the female part of the corn plant and the tassel is the male part. Before we knew much about it we believed that corn was a branch plant with a pistil and stamens both grown on the tops of the branches, but you will find a little piece of tassel on the ear, or a piece of kernel on the tassel. When one plant is a little taller than another the pollen will fall on the one below and through natural selection it will equalize until one ear is away up and the other away down. If you will notice the number of joints and the number of husks

on the shank you will find it is identical. You will find that the kernels are all produced on one branch and the pollen all on the other, through a matter of natural selection. The pollen grows high and the kernels lower. You will find that the things revert every once in a while. Notice the suckers; that is another branch that is struck off.

Q.—Does it keep corn from growing if you cultivate it late?

A.—It depends on the weather. In 1915 I knew of one man who put a chain on a little wheel and let his boy drag it for a month and saved his corn. The rest of us did not and we lost out. We have learned that we cannot go back after the third cultivation unless we can go back in ten days. If we can't, we don't go back, because in our section lateral roots grow pretty well to the surface and by cutting those off you do your crop damage, but if you can get in there before they are formed, or keep them down by cultivation you will not be troubled in that way. But in a year, when maturity is backward, you might not be able to get to your corn in ten days. It might be too wet. If you can keep at it steady enough it would be a good thing for a corn field to continue to cultivate it, but it would not be economic. Two farmers were telling me that the fourth cultivation of corn was the last time they could possibly cultivate and get their money back. They both agreed that usually the fourth cultivation was worth while but if they had any set backs at all they stopped at the end of the third time.

Q.—In placing these dolls in the bushel measure, will heat develop equally in the bottom and top?

A.—We turned the bucket over and the heat will rise in the same manner as in a room. One gentleman was speaking last night about using a candy bucket. I think that would be preferable to the other from the very fact that you turn it over and it cannot be water-logged; that takes care of practically all the troubles you would have.

Q.—The question has often been raised: Has corn that has long tops on it superiority over corn that has not?

A.—It is not. No. The corn that has the most bushels of corn on it makes the best ensilage, according to our specialists in husbandry. In going out to buy corn for ensilage purposes they buy it directly on the number of bushels it produces.

Q.—I have heard some say that it is possible to have too much corn in your ensilage. Have you any experience in this?

A.—Of course I have had no experience in this but I know they put in all corn at the dairy farm. Our farms are two or three miles apart. All I know is that they are very careful to get good corn. There are several machines there that will crush corn in the rollers.

HAY AND PASTURE CROPS.*

DR. C. A. ZAVITZ, PROFESSOR OF FIELD HUSBANDRY, AGRICULTURAL
COLLEGE, GUELPH.

This paper was read by A. W. MASON, who made the following explanation:

Monday afternoon I was working away at the office and a telegram came through stating that Dr. Zavitz would be unable to come to Chatham for the

[*The paper has been printed as Bulletin No. 269. Copies may be had on application to the Ontario Department of Agriculture, Toronto.]

Fair, so it is my privilege to be here and help in the judging of the grains and small seeds. Before I go on, I would like to say a few things about your exhibition here. It was my privilege to be here several years ago, and I appreciate the opportunity of getting back here this year, although it was an accident. Last year you were laboring under great difficulties, weather conditions and a poor maturing year, consequently the show wasn't up to standard. This year you have had everything in your favor in the matter of the exhibition and you should be proud of it. Although I was not engaged in judging your corn, I was delighted when I was allowed to go over some of your samples, and, in the way of small grains, I don't think I have ever seen anything better, in the way of seeds, for variety, grading and brightness of samples generally. You have every reason to be proud. In the matter of small seeds, they were great! They were better than any No. 1 Government standard you can get, so it seems to me this year you should be proud of yourselves.

THE LIVE STOCK OUTLOOK.

WADE TOOLE, ANIMAL HUSBANDRY DEPARTMENT, AGRICULTURAL
COLLEGE, GUELPH.

I am prepared to say that exhibitions of this kind exceed in value anything you can say, because they are put on by you and sometimes by the Government for your benefit and they are of value to you in getting you away for a while and in giving you that sense of success which is so necessary. Here in the southwest of Ontario you have special conditions, conditions which do not prevail in countries farther east or north. Now, I did not come down here for a minute to tell you what kind of live stock you should keep or how you should keep it. I always maintain no man knows more about his own business than that man himself. If I can throw out any hints then I have served a purpose in coming down. If you do not agree with me, I hope you will bring up the matter during my address, that I may learn something from you.

In Essex and Kent and the counties immediately surrounding them—what we call the corn belt of Ontario—you have special conditions. Land is worth \$150 an acre and more. Now, it would be folly for me to tell you to go into unlimited production of live stock on land that is so high in value. Live stock cannot be used in unlimited extent in these counties unless you have a special man catering to a special party. But you can have better live stock and a lot more than you already have. I do not know how good your stock is but I know the average of Ontario pretty well, and I know there is plenty of room for improvement even in sections of Ontario which are particularly suited for special crops as you have here. You require added fertility for your soil, and there is no better way you can get it than by a liberal use of farmyard manure. The subject which Mr. Mason gave us, of field crops, is very closely connected with the live stock industry; the one is absolutely dependent upon the other, and the two are interdependable. The plant cannot grow and thrive to maturity unless you give it proper food. Your stock cannot do well by you unless you have plenty of that mature plant for hay and silage, unless you have good stock. The two most important things in agriculture, to my mind, are good live stock and good field crops. If we have good field crops to feed to good live stock we are likely to get a fair return from our agricultural farms as regards specialized farming.

What is the outlook for live stock? And mind you this is only my own opinion. I do not know what you are going to get, and I am frank enough to

admit it, but comparatively speaking, the outlook for live stock in this province, in this section of the province, if you will, never was better, and I want you to get that straight. Comparatively speaking, and by comparatively speaking I mean this: Live stock and live stock products, to my mind, are likely to find an urgent market with good prices. I want you to consider that question in contrast to the other products which the land produces. Compared with all the other products of the farm, live stock and live stock products must continue to be high.

We have been living in a period of high pressure and high prices—high prices not only in live stock but all commodities. The period of high prices, if you follow economics at all, you will notice is almost always followed by a corresponding period of lower prices. We had fairly high prices before the war; they became higher, of course, as a result of war conditions, which you would naturally expect. Now, to my mind, these prices must become somewhat lower even in live stock products that we sell off the farm. The tendency at the present time is downward. At the same time, live stock must continue to be the standing export from the greater part of the Province of Ontario, considering conditions in Europe. There is a shortage of cattle in all of the European countries. I have made a statement that Europe is about ten millions cattle short in the supply compared with what they had at the beginning of the war. Great Britain has as many cattle as she had when the war began. Great Britain is careful always and looking ahead, and she saved her supply of good cattle to still have her proper amount of breeding stock which will be necessary to furnish breeders for all the world, as she has done. To my mind, one of the proudest things in connection with the “tight little isle” over there, as far as agriculture is concerned, is the marvellous number of high grade, pure-bred stock that they raise and send out, and we know that Great Britain is the breeder of all our best cattle, except the Holsteins and Belgian cattle. And when conditions become normal and trade is following the usual channels there should be a demand for all the meat that can be sent over.

In sheep, there is possibly a shortage of two and a half millions, according to the figures that we have received. In pigs, there has been a great slaughter. They are twenty-five millions short, taking in France and Belgium, and Denmark alone is nearly two millions short. There is just a point there that possibly you might consider. I am prepared to say this: I am not going to say that down in Essex County you would be well advised to get to work and produce a distinct type of bacon hog, but I am prepared to say, that for the bulk of hogs produced in Canada, our market seems to be Great Britain, and Great Britain demands bacon hogs. Denmark, our keenest competitor, is two millions short, Canada, due to the wonderful efforts of the men on the land, has one million more hogs than she had at the beginning of the war. When things right themselves, as they will shortly, if we produce and send out a uniform product to capture the trade, we will get ahead of our competitor, who proved himself a poor sport in the war and sold his bacon to the enemy. I do not think Danish bacon will pick up in the market. And the easiest way, in my mind, is to put a premium on fat hogs. If a man is producing the right type, pay him twenty-five cents more per hundred than he was getting for smaller hogs and he will produce it.

Now, in this corn belt, where you can grow corn, as they do in the United States, with a bigger degree of success than we can in any of the other counties, you are probably on the right line if you do not produce a big hog. You can compound a ration with corn as a large percentage which will produce a good grade of feed for hogs. If you can compete in the production of the large hog, which is the natural outcome of heavy corn feed, well and good.

We have 67,000 more horses now than we had at the beginning of the war. For some reason our horses were not taken to the war in large numbers, but at the same time, if you go out to look for a team of horses which will weigh 1,800 lbs. apiece, which are clean-limbed, sound and young, with good feet and good action, you have some hunt on your hands. We might as well admit right now that we have been breeding a lot of little, misfit draught horses. They are all right on the farm, they are all right for light work, but when it comes to marketing that horse, you cannot find a good market for him because there are too many of him and not enough of the good ones. To make the improvement that is necessary we must have better breeders, we must be more careful about the sires we select—a little more size and substance if we want quality. In Great Britain the prices are abnormally high. Real good geldings are selling for \$300 apiece, and were up to \$500. One class of geldings went as high as a thousand dollars. These horses are being brought back from France, and will form the basis for the future breeds. The tractor is here, and here to stay, but the tractor can never drive the real good draught horse off the Ontario farm.

We have room to do some big things in Canada. We believe we have the kind of people who can do big things. We have lots of room. We have only an average of six head of cattle for 100 acres of land, compared with Holland which has 29, Denmark 25, Great Britain 16. In our exports to Great Britain, which used 67,000,000 lbs, we only supplied 29,000,000 lbs., and we have a great market open to us there. We can send as much as we can produce, though, of course, we have to grow for our home market as well. In Ontario we have only about two head of cattle for 100 acres in farm land; in Holland they have 16; Denmark, 14; Great Britain, 5. Britain imports over 4,800 million lbs. of butter a year. This market is open across the water. There is a great demand for cheese, butter, ice cream; they will take all we can put out. Prices will come lower, but it is going to make most foods less. The man who produces the most he can and gets the best price he can for it, the going price, will not be out any. The successful man every time is the man who uses his head as well as his hands, and if a man is not producing heavy crops to sell and a certain amount of stock, he is not making the best. The man who has worked the hardest for production is the man who is always best off at the end of the year.

In sheep, I would wish to say that we have a million more sheep in Canada than we had before the war. In my opinion, the prices of lamb and mutton are not likely to go back where they were in 1910 and 1911. I do not think you will sell first-class Down wool for 10c. a lb. I do not think wool will remain as high as it was last year, when in the U.S. the average price was 68c. per lb. I understand the price is granted to the growers in Great Britain for another year. There may be a drop of 15c. or so; it may not drop; but the drop is not going to be very material, and it looks as if the output of wool is going to be a good thing for our farmers. In comparison with prices before the war, the price will remain very good indeed. We are told by the Canada Food Board that a normal supply of wool cannot be reached in the next six years.

In pigs, we have only three for each hundred acres in Ontario. We could raise more, we should raise more, but I am convinced that in all parts of Ontario, the greatest need of the live stock industry—horses, cattle, sheep and swine—is more really high class sires. We have been raising too many little, plain, measly scrubs. We are using them and we should not do it, even on our grade herd. The only way to improve a grade herd—though I am not advising you to take to pure-breds if you do not want to—is to use a high class sire of the same breed you are

breeding. If you wish to cross breed, as some of you are doing with your pigs down here, if you do that you will find you need a prepotent sire of one and a fairly high-grade sow of the other breed or you cannot carry crossing successfully after the first generation. Someone must look after the grading of the pure-bred females and pure-bred sires, to improve our herds as the years go by.

Figures will bear out the statement I have made regarding the need of pure-bred sires. Four hundred and thirty-seven farms in Ontario were surveyed in Oxford County. It was found there that the men who were not using pure-bred sires were getting very low percentages from their cows. Those who were using pure-breds for ten years or longer were getting very high results, and the same will apply to beef cattle. Now, when you get pure-breds, don't just be satisfied with the name or the pedigree on the piece of paper. Scrub stock in a pure-bred is more damning to you than scrub grade stock. A good sire, to my mind, is at least half the herd in all cases, and a poor one is all.

But you will want me to say a few words in regard to corn in relation to my topic. Corn is the greatest energizing heat producing and fat furnishing feed we have. It is known to scientists for its value for fattening purposes. It is also known by the man who purchases it for fattening purposes, and, by the way, the feeder has always been just a few steps ahead of the scientist in the knowledge of feed. There is more food value in corn because of the grain and roughage. Your exhibits in corn are excellent. There are a number of bushel lots that would be a credit to any community. I counted sixty kernels to the row; the kernels were the same size and type, and the ears were all the same size and type. You can produce corn to perfection in this district, and you have in corn the feed which will do the most for your cattle, considering the work put on, considering all the cereals we have, used for feed. It is the carbohydrate in it which makes it so valuable, for it is, of course, high in fat and high in oil, both of which are suitable for fattening. But corn is low in food protein. In compounding your rations, in using corn, always remember this (I am speaking of the grain now). Your corn plant is not high in protein, and you must add some feed which is rich in protein, particularly if you are feeding young animals—horses doing hard work or cows for milk production. Corn is also low in mineral qualities, low in calcium, and is, on the whole, not a food itself characterized as being a first-class feed for young animals. If you feed young pigs on corn alone you would expect and you would likely get pigs that were very weak boned and pigs that would go off their feet any time. It should always be used with a legume roughage, and to my mind the best legume forage is good red clover. If you can produce alfalfa you have a better feed than red clover, but that cannot be grown in all parts; so I would attempt to grow as much red clover as I possibly could for feeding purposes, as corn, either as silage or crops, would be made effectual in connection with legume crops such as red clover. Corn is our most palatable grain, on account of its oil, I presume. It may form a basis of rations for horses, cattle, sheep and hogs, in fact, in the rations of all farm animals. It is good for dairy cows, but only in a limited quantity. If you feed dairy cows for high production, you would not feed a straight ration of corn. It is too heavy a feed for milk cows. It is better to spread it out, put more bulk to it, such as wheat bran, which of course, will bring up the protein value, or a little linseed or cotton-seed meal.

With regard to soft corn. Sometimes you have fairly large quantities of corn that is not matured well—we have in sections farther north and farther east, and some seasons you have it down here. Providing you can store your soft corn and keep it from moulding it is satisfactory for feed. The dry matter in your soft

corn equalizes the food value of your corn, although it contains much more moisture and is possibly worth only about two-thirds as much as hard corn. Soft corn will contain better than one-third more moisture than hard corn.

You may have occasion at some time to use corn-cob meal. That is, of course, simply the ground corn and cob all together. Corn-cob meal is a fibrous feed but makes a good feed for your dairy cow. It is not profitable, as you know, to feed corn-cob meal to pigs or sheep. They do not handle the fibre to such good advantage as the dairy cow, so she is the best animal to feed it to.

The by-products of corn are gluten-meal, which contains the corn bran and gluten. It is high in protein and is a suitable feed for dairy cows. However, we generally find that a variety in rations is important, and if you add the by-products, such as gluten, in order to bring up your protein, to corn, you will not get as good results as if you add wheat bran or something of that nature. Germ oil and gluten meal are also by-products, but I need not say much about them. They are not very well known here. Gluten bran is a heavy feed. Hominy feed, you may hear off; it is made of corn bran, corn, and part of the stalk. It is bulkier than corn, a little better than corn in protein, but just about the same food value, though a little better for dairy cows because of its bulk.

As to the coarse roughage from corn: You have corn fodder, which takes in the corn plant, ear and all, and you have the stalk, the corn stalk after the ear has been removed, and you have the silos. These three—fodder, stalk and silos. Fodder, being the whole plant, is naturally low in protein, about one-fifteenth in digestible values, whereas you want it one-eighth for general use, or one-sixth or seventh for dairy cows. There is no plant which will produce as much roughage as corn. Ten tons to the acre will give you 4,000 lbs. dry matter per acre, enough to feed a cow, and feed her well, for 160 days. If you have a 15 ton crop you would have enough to feed her a corresponding increase, but the fodder should be supplemented with something giving more protein. About corn stover, I wish to say that I have seen corn stalks practically going to waste, and corn stalks will weigh almost as much as ears. Almost half the cob is stalk, and it will contain about one-quarter of the digestible crude protein of the plant, and over one-third of the total digestible nutrients, which are the real matters with which you are concerned. It seems to me that stover could be used to very good advantage in the keeping of stock over winter, as a maintenance ration. Where you are not feeding for any particular gain, used with clover, hay or some other food rich in protein, such as oats, a little corn meal, stover could be used to very good advantage. I do not think we can afford to use ears with corn stover, but a great deal more could be ensiled to good advantage than is being done.

In putting it in the silo, of course, you would be required to add moisture. The actual amount no one can tell you. If you add all that the corn will take up evenly, when water will appear on the end of the stalk after soaking it, you will have about the right amount. Some people say, use equal weight of water and silage, but I would rather take it the other way, or stand it on end in the barn and feed it out in its whole form during the winter. You will find it more palatable and slightly more digestible and more economical, in the end, to ensile it. You will find it a more valuable rough feed in the carrying over of young cattle and in the maintenance of dry cows, which are not pushing at any time—a good maintenance ration. Of course, the best way to handle the corn crop for feeding is to ensile it. Silage is one of our standard roughage feeds in this country and one of our best feeds. Corn silage is one of the best values, about the same as

dry corn fodder. Fodder, of course, loses about 15 per cent. to 20 per cent. of the dry matter in the curing. Silage is of course the more satisfactory way to handle corn as it adds succulence to the corn stalk. We should be careful, however, about the maturity of the corn when it goes into the silo. In the earlier maturing varieties, where you are sending out seed to other parts of Ontario where it is necessary that they get good seed for good silage, it is important, of course, that you pay attention to early maturity, and varieties that mature early to give the best possible seed. Corn, to make the best possible silage, should be cut in the glazed state.

With regard to sowing thickly or thinly for silage purposes, we found we got practically the same feeding value from corn sown thinly in a drill, which cobbled well and did not give as much food in pounds to the acre; but, of course, it is rather difficult to get men to see this, and sow less thickly. We used about 50 lbs. to the acre. Some people laughed at the experiment, but you men here can prove it yourselves. Analysis of that which was heavier cropped and which was thinly cropped showed the difference. Remember this: the corn is the kind of plant that when it starts to mature it draws upon the stalk for food material to mature the cob into corn, so if you grow two lots, thinly and thickly, and plant and cut them the same day, you have as good silage from the thickly sown as from that which was heavier eared. I expect to sow 60 acres this year, but I do not think I shall sow it much more than 20 lbs. to the acre. Not that I expect that I will have a better yield, but it is a matter of expense.

It was found, by Professor Day, in an experiment that well matured corn was worth from 15 to 20 per cent. more than corn which was ensiled in the green state. Now I do not know that I need go very much further. Corn may be used in limited quantities for dairy cows. If you will feed dairy cows you should plan to add something to your corn ration, some high-in-protein feed, such as linseed or cotton-seed oil or red clover or alfalfa. For horses, corn next to oats is the most important feed. Horses on light work or idle may be maintained on corn quite often, but horses on hard work will do better on oats, corn being a fattening food and not so suitable to the production of energy as oats. For pigs, corn is a fattening food. But it should never be fed alone unless you have skimmed milk to feed with it. In conjunction with skimmed milk use ground oats or shorts, you can use corn with fine results. Not a very bad practice is to sow a crop of rye or rape at the time of the last cultivation and you will then have a mixture of corn and green stuff which is a little more economical for feeding on the land.

Corn for sheep is fairly heavy, but you may use from one to three pounds a day for fattening. If I were keeping ewes over I would be careful not to use it too heavily. If you use it for horses or sheep I would advise using it coarsely ground, as it does not easily digest and is prone to congest in the digestive tract. To fatten steers, corn is very good. You will always find as they get fatter they will not need so much roughage. They will not eat it. Feed them hay or legume roughage, and as they fatten you will find they eat less of it. For horses, silage is not generally fed. In limited quantities it is better. If you have mouldy silage do not, under any consideration, feed it to horses or sheep. It is fatal to horses or sheep. You may be able to get away with mouldy silage for your cattle if they are not producing dairy products. Sheep may get two or three lbs. of silage, but I would rather have two or three pounds of roots. A good percentage is forty pounds of silage per thousand pounds of cattle, or thirty pounds of silage and twenty pounds of mangels, and with it two or three pounds of grain.

SPECIALIZING IN CORN.

L. H. NEWMAN, SECRETARY OF THE CANADIAN SEED GROWERS' ASSOCIATION, OTTAWA.

I have always been interested in corn conventions, as I was one of the pioneers in seeking the improvement of seed corn. When Mr. McKenny was secretary in Essex, he asked me to suggest some line that he could talk about in this part of the country and I said, "For goodness sake take up the question of good corn seed." In that part of Canada where I live we have always had to depend on either the United States or Western Ontario for our seed corn. Now, it sometimes happened that we would get seed that would give us excellent results from Western Ontario, good quality; and the next year we would order from the same grower and get seed that gave poor results. That was so often the case that we, in the Eastern part of the Province, came to depend on the United States to a greater extent on this ground—vitality. We found it was much safer to purchase seed grown in Ohio or some of the Northern States.

Now, we believe that corn can be grown in Essex and Kent and some of the adjoining counties which is better suited for our demands, where we grow corn for ensilage, than is the corn brought across the line. Our corn growers in the East buy thousands of bushels of seed every year, and they are not going to have the confidence they should have in the growers of this country so long as this situation continues.

I am very much interested in the seed situation, and I am pleased to note the improvement being made. Our Association, the Canadian Seed Growers' Association, is receiving inquiries every day as to where the writers can get seed corn of one, two or three varieties. We are very careful about giving such information. We have got a number of good men to systematize it and do a certain amount of breeding work. Some have done that, but only a very few. Of course, the last few years there has been a very good reason for that. There is not a great difference between seed corn and feed corn prices, and as a result there has not been the encouragement to men to grow better seed; but as things are tending to get back to normal there is going to be a greater interest along this line, and I notice quite an improvement in the seed question. We must get back to a systematic improvement, and confine ourselves to a few types—one Bailey, one Early Leaming, and Wisconsin. Those are the varieties that we want down there. Flint corns are grown to a certain extent, but they do not worry us as much as the dents, which we grow for silage purposes. Some are mixing them for silage, either growing them in adjoining fields or mixing them when they are put in the silos. We can grow field corn, but there is not the same irregularity in type or strength. You can get better uniformity in flints. What we do want is a choice variety of dents from the seed growers. And if you, as seed growers, want to make a success of it and gain the confidence of the growers and buyers in the eastern part of the Province, you have to operate the seed plot, the plot that so many people think they have not time for. The seed plot does not require a great deal of attention or time, though it takes some.

Take out a number of ears of corn and sow each row in the plot from corn in a single ear. We find there is a great deal of difference in the productive capacity and formation of the ears. Some rows will produce double the fodder. From ears that look as near alike as two peas you will find some that will not do as well as others. We are getting down to type by eliminating the misfit types,

the types lacking in uniformity, and getting the types which behave well in the eastern districts. We need a number of first-class men in these counties here to take up that work. I am sure that any who go in for this work will find financial encouragement in the near future to more than compensate for their time and efforts.

These plots are operated each year and the good ears are selected. We choose the best row and take the best ears from the best row, and the next year these are sown in the multiplying field. Where it is grown under the supervision of our Association or the observation of it, we are able to give the people who are looking for good seed with some breeding behind it the information they are looking for.

Two or three years ago there was some registered seed which was bred up and found to be uniform. Some of this went to the eastern counties and gave remarkable results. This same man asked me recently if he could get some more of that same corn with the tags and seals on it. I assured him we could get it for him. We have confidence in that kind of stuff. The men in the east are dealers in dairy stock and fat stock; they know what grading means in corn as well as live stock; and when they can, with a fair degree of confidence, go back to the corn grown in Canada they will do so.

Now, the man who wants to make a success of this matter must specialize and look after and follow up these experiments to a little greater advantage. In the Winter Fair at Ottawa we had a number of growers from this part of the country offering their seed for sale. Some of it was eligible for sale and some was not. A flat price was asked for all that corn, \$5 a bushel. Some was easily worth that, but there were only two or three lots I had any adequate knowledge of. That is where our system of registration comes in. Where the corn is grown under some sort of observation so it can be registered and vouched for, where we are able to give that information that our buyers desire, the grower will make good, but he has got to have the goods. But the point is that in Ottawa, at the Winter Fair, and the Guelph Winter Fair and all such exhibits, where one man would undertake to sell this special corn and have a special booth and literature, he could act as selling agent for this corn which would be much more economical for those men who have corn to sell. It costs considerable for a man to go down there and stay a week or so trying to sell his seed, when there are a number of men standing around doing the same thing. They do not know where they are at, and we want to assist the man who grew his corn under supervision and we hope to be able to assist him in disposing of his seed. We find that men who give attention to this work have perhaps not been very well paid; we believe they should be able to reap a fair reward for their efforts. It isn't fair for a man who is doing this kind of work and has the goods to go into a strange place and try to offer his goods to strange people, purchasers there, among many others, in competition with the fellow who has just ordinary seed corn. The difference between ordinary seed corn and corn that is bred up has been demonstrated to be so great that we feel there should be an encouragement for the breeder of good corn. Until our eastern grower can secure that graded corn he will go to and continue to look to the United States growers.

This year, in examining your samples, I find that your germination is good. That has not always been the case and I am glad to find the advance. We have found that if a great many of the ears are low in germination it is not well to use that corn, and if a district is known to produce corn which is low in germination the eastern growers will be careful about buying seed from that district. Now, there

are a lot more men paying attention to the growing of seed than when these exhibitions started and we wish them every success. We would like them to have our opinion, looking at things from the outside, as to how they are likely to make the most of their efforts and we would like to see a number of men take up this work, as we are firmly convinced if they will do so they will make good, if they go at it systematically and have it in registered plots.

Let me compliment the people of the western part of the Province on their improvement in the Corn Show. You certainly had a mixed lot of corn at Kingsville two years ago, and there is a wonderful improvement. I hope to see still further advancement made in the production of seed corn. It means a great deal to us down east, and it should mean enough to make it worth while to you here to continue along these lines.

Q.—What are the best varieties for silage in the east?

A.—In some districts where corn comes on very fast, Wisconsin has taken quite a hold, and Whitecap is quite a popular variety. On my own farm in Lanark County, I have grown Whitecap, Golden Glow, Leaming, and I have grown them for some years, but I like Bailey. If we can get an early strain of Leaming we like that very much. Speaking of Bailey, I have an order in my book at the present time for a man who wants fifty bushels of Bailey that I can stand behind. I could not find it for him. That is not true of all varieties. There has been an advance in most varieties, but for some reason Bailey has fallen down. We have not any men at the present time who are specializing in Bailey. Do not get too many varieties. The best types are Leaming, Bailey, Whitecap, Golden Glow to some extent, although I have not found it as good in yield. There is nothing much better than Bailey or Leaming. Wisconsin, in many places, is too late. There is no corn we get down there that gives quite as much foilage or fodder as Wisconsin, but it is a little bit on the late side. On the whole, I fancy Whitecap is grown more than any other variety.

Q.—It falls down though, don't you think?

A.—Yes, it falls down with the wind. Bailey is much better. It has not so much base root. Flints with us do not give us the same tonnage, but they give better quality. Salzer's North Dakota is one that gives us a good amount of foliage and stands up very well with the dents in total tonnage. In my own field I have one main field with Bailey and another with Salzer's North Dakota and Longfellow. If the Bailey comes up it makes good ensilage. Then we husk the North Dakota and Longfellow. If there is a poor year for Bailey we use the others for the silo.

REPORT OF COMMITTEES.

The report of the committee on "Corn Standards" advised that the standard for Wisconsin No. 7 be changed in length from $8\frac{1}{2}$ - $9\frac{1}{2}$ inches to 8-9 inches and from $7\frac{1}{2}$ inches in circumference to $6\frac{3}{4}$ - $7\frac{3}{4}$ inches. Carried.

This Association in its eleventh annual meeting desires to place itself on record as favoring regulations governing the sale of seed corn so that "All Corn" sold for seed should be labelled United States grown, if imported from the United States, and Canadian grown, if grown in Canada."

Upon motion the meeting adjourned.

Ontario Department of Agriculture

Forty-Ninth Annual Report

OF THE

Entomological Society

OF ONTARIO

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



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1919

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THE RYERSON PRESS

*To His Honour, SIR JOHN STRATHEARN HENDRIE, a Lieutenant-Colonel in the
Militia of Canada, etc., etc., etc.,*

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of your Honour, the
Report of the Entomological Society for 1918.

Respectfully submitted,

GEO. S. HENRY,
Minister of Agriculture.

Toronto, 1919.

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FINANCIAL STATEMENT

For year ending October 31st, 1918.

Receipts.

Expenditures.

Cash on hand, 1916-17	\$42 10
Advertisements	15 25
Back Numbers	75 94
Cork and Pins	74 87
Dues	93 34
Subscriptions	443 60
Bank Interest	8 95
Government Grant	1,000 00

\$1,754 05

Expense	\$52 00
Cork and Pins	51 60
Printing	1,316 00
Annual Meeting	101 17
Annual Report	25 00
Salaries	125 00
Insurance	26 00
Cash on hand	57 28

\$1,754 05

To balance due on printing	\$102 59
By cash on hand	57 28

Net deficit \$45 31

Auditors: L. CAESAR.
J. E. HOWITT.

Respectfully submitted,

A. W. BAKER,
Secretary-Treasurer

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Good, Lieut. C. A.	Truro, N.S.
*Harvey, R. V.	Victoria, B.C.
Hudson, H. F.	Entomological Br., Ottawa.
*King, V.	Bureau of Ento- mology, Wash- ington, D.C.
Martin, A.	South Vancouver, B.C.

Matheson, J. B.	Kelowna, B.C.
McCubbing, C.	Salmon Arm, B.C.
Neville, S. J.	Cottonwood, Sask.
Prewett, F. J.	Toronto, Ont.
Rive, Henry	Victoria, B.C.
Robertson, W. H.	"
Robson, A. B. V.	"
Rowland, H. F.	O.A.C., Guelph.
Simms, H. M.	Montreal, P.Q.
Snazelle, Chas.	Thornloe, New Ontario.
Spencer, Capt. G. J.	O.A.C., Guelph.
Strickland, E. H.	Entomological Br., Ottawa.
Venables, E. P.	Vernon, B.C.
*Walsh, Lieut. F. W.	O.A.C., Guelph.
Williams, C. M.	Nappan, N.S.
Wilson, Ed.	Vancouver, B.C.
Wright, Lieut. W. H.	O.A.C., Guelph.

* Killed in action.

Entomological Society of Ontario

ANNUAL MEETING

The Fifty-fifth Annual Meeting of the Entomological Society of Ontario was held at the Ontario Agricultural College, Guelph, on Wednesday and Thursday, December 4th and 5th, 1918. The chair was taken by Prof. Lawson Caesar, the President. The following were present at the meeting: Mr. J. J. Davis, West Lafayette, Ind.; Prof. P. J. Parrott, Geneva, N.Y.; Prof. R. Matheson, Ithaca, N.Y.; Dr. C. Gordon Hewitt; Messrs. Arthur Gibson, C. E. Petch, C. B. Hutchings, F. W. L. Sladen and Dr. S. Hadwen, Ottawa; Prof. E. M. Walker and Dr. W. A. Clemens, Toronto; Mr. James Dunlop, Woodstock; Mr. W. A. Ross, Vine-land; Mr. W. E. Biggar, Hamilton; Mr. F. J. A. Morris, Peterborough; Mr. H. F. Hudson, Strathroy; Father Leopold, La Trappe, Que.; Prof. W. Lochhead, Macdonald College, Que.; Mr. F. Letourneau, Oka, Que.; Prof. W. H. Brittain, Truro, N.S.; Mr. John D. Tothill, Fredericton, N.B.; Mr. Norman Criddle, Treesbank, Man.; Professors C. J. S. Bethune, L. Caesar, J. E. Howitt and D. H. Jones; Dr. R. E. Stone; Messrs. A. W. Baker, H. G. Crawford, Eric Hearle, R. M. Aiton, H. C. Huckett and others, Ontario Agricultural College.

By the kindness of Dr. Creelman the visitors were entertained in the College Residence during their stay in Guelph. This arrangement added much to their pleasure by affording many opportunities for social converse, and also saved the time usually spent in travelling to and from the town.

During the morning of Wednesday, Dec. 4th, a meeting of the Council was held, at which various matters of business were brought up and discussed. It was decided that the next place of meeting be Ottawa, the date to be fixed later. A suggestion was made and afterwards adopted at the general meeting, that the *Canadian Entomologist* be issued in ten instead of twelve numbers, but that the quantity of matter remain as heretofore; and also that the size of the page be increased to conform with the majority of scientific publications.

In the afternoon the Society met at 1.30 o'clock. After opening the meeting the President read a letter from Mr. Wolley Dod, from Mesopotamia, which was much appreciated. The following message, proposed by Messrs. Gibson and Tothill, was sent to Dr. Fyles:—

“Entomologists from Canada and the United States now in session at Guelph, extend to you their warmest greetings and regret your inability to attend.”

The Reports of the Council, Treasurer, Librarian and Curator were then read and adopted. The Reports of the various Branches, the delegate to the Royal Society of Canada, and the Directors were taken as read.

REPORT OF THE COUNCIL.

The Council of the Entomological Society of Ontario begs to present its report for the year 1917-1918.

The Fifty-fourth Annual Meeting of the Society was held at Macdonald College, P.Q., on Thursday and Friday, November 8th and 9th. The President

of the Society, Mr. A. F. Winn, Westmount, P.Q., occupied the chair. There was a very satisfactory attendance of members and visitors; among the latter were Messrs. A. F. Burgess, Melrose Highlands, Mass., and J. H. Emerton, Boston; Drs. T. J. Headlee, New Brunswick, N.J., and W. C. O'Kane, Durham, N.H. A large number of papers of interest and importance were read and discussed, of which the following is a list. Reports on Insects of the year in the various Divisions of the Province by the Directors, Messrs. Gibson, Cosens, Morris, Noble and Ross; "Further Notes on the Imported Onion Maggot and its Control," by Mr. Arthur Gibson; "The Entomological Service of Quebec," by Mr. Georges Maheux; "Some Important Insects of the Season," by Prof. Caesar; "The Apple and Thorn Skeletonizer," by Dr. E. P. Felt; "Some Notodontian Larvæ," by Dr. J. A. Corcoran; "The Problem of Mosquito Control," by Dr. T. J. Headlee; "The Black Cherry Aphis," by Mr. W. A. Ross; "A Comedy of Errors," by Mr. F. J. A. Morris; "Transcanadian Spiders," by Mr. J. H. Emerton; "A Further Report on the Value of Dusting vs. Spraying," by Prof. L. Caesar; "Notes on the Ecology of Insects," by Prof. W. Lochhead; "Effects of Stable and Horn-fly Attacks on Milk Production," by Mr. A. W. Baker; "Two Unusual Garden Pests in Nova Scotia," by Prof. W. H. Brittain; "The Entomological Record," by Mr. Arthur Gibson. These papers have been published in the Forty-eighth Annual Report of the Society which was issued by the Ontario Department of Agriculture in October last. The following papers were also read but not submitted for publication: "Black Flies in the Dixville Notch," by Dr. W. C. O'Kane; "The Nervous System of Caterpillars and its Relation to Classification," by Mr. J. M. Swaine; "Habits, Behaviour and Tropisms of Insects," by Dr. Arthur Willey. By the courtesy of the U. S. Bureau of Entomology, were exhibited motion pictures of "Field and Parasite Work Against the Gypsy and Brown-tail Moths," through Mr. A. F. Burgess and Dr. C. Gordon Hewitt, and of "Orchard Spraying in Nova Scotia," by Prof. W. H. Brittain. A symposium was held at the close of the evening session on the question of how Canadian Entomologists can help to increase food production, led by Dr. Hewitt and participated in by many of the members.

The Canadian Entomologist, the official organ of the Society, has been regularly issued each month. The fiftieth annual volume will be completed by the issue of the forthcoming December number. The forty-ninth volume, published during 1917 contained 440 pages, illustrated by 21 full page plates and 41 figures in the text. The contributors to its pages numbered 64 and included writers in Ontario, Quebec, Nova Scotia, Manitoba, Alberta and British Columbia, and also in eighteen of the United States. The series of papers on "Popular and Practical Entomology" was continued each month and provided interesting and instructive information for the general reader. In the systematic papers there were described four new genera, 137 new species and 10 new sub-species or varieties. As a result of the publication from year to year of a large number of articles on descriptive and systematic entomology, there is a constant demand for back numbers and volumes.

Twenty-five new members have been added to the rolls of the Society.

It is with deep regret that the Council records the removal by death of one of our oldest and most distinguished members, Mr. William Hague Harrington, who died at his home in Ottawa on the 13th of last March in the 66th year of his age. He was well-known to Entomologists throughout North America by his systematic work in the order Hymenoptera, and was justly regarded as our best

Canadian authority on this department of the insect world. Of late years he had taken up the study of Botany with characteristic energy, and became familiar with the Flora as well as the Fauna of Ottawa and the surrounding country. An appreciative memoir by Mr. Arthur Gibson and an excellent portrait appeared in the June number of the *Canadian Entomologist*.

To the Society's Roll of Honour in the world-wide war, have now to be added the names of Captain R. V. Harvey and Lieut. Vernon King, who have laid down their lives on the battlefield in defence of the Empire and the freedom of mankind. Captain Harvey was for nine years Secretary of the British Columbia Branch of our Society (1902 to 1911) and the success of the Branch during that period was almost entirely due to his enthusiastic work. In the collection and study of insects he devoted himself at first to the Lepidoptera and of late years to the Diptera. At the outbreak of the war he joined the 7th Battalion and was with the first Canadian forces who went to France. In April, 1915, he was severely wounded in a charge and died a few weeks later in a German prison camp. Lieut. King, an Englishman by birth and a graduate of the Ontario Agricultural College, was employed in the Cereal and Forage investigation branch of the U. S. Bureau of Entomology, where he was doing excellent work. He could not, however, resist the call of patriotism and in November, 1914, he returned to Canada and entered the British Army. He served in Egypt and the Dardanelles, and subsequently joined the Flying Corps in France. During an air fight against heavy odds he lost his life on April 11th, 1918.

REPORT OF THE LIBRARIAN.

Owing to the want of funds available for the purpose, the only books purchased for the Library during the year ending October 31st, 1918, are Fabre's "The Life and Love of the Insect," Burmeister's "Manual of Entomology," and Comstock's "The Wings of Insects." Including these works, fourteen bound volumes have been placed upon the shelves, making the total number 2,285. There is a large accumulation of unbound periodicals, bulletins, reports and pamphlets, which, it is to be hoped, may some day be bound and made more readily available for reference.

Respectfully submitted,

CHARLES J. S. BETHUNE, *Librarian*.

REPORT OF THE CURATOR.

The Society's collections have been examined from time to time, and the necessary steps taken to prevent injury from museum pests or other causes. At the present time they are in good condition.

Respectfully submitted,

ERIC HEARLE.

REPORT OF THE MONTREAL BRANCH.

The 376th regular and 45th Annual Meeting of the Montreal Branch was held at the residence of the President, Mr. A. F. Winn, 32 Springfield Ave., Westmount, on Saturday evening, May 11th, 1918.

The report of the Council showed that during the season seven meetings were held with a total attendance of 85, or an average of over 12 per meeting. A public meeting was held in March at the Redpath Museum, McGill University, when Mr. J. M. Swaine came from Ottawa and gave an illustrated lecture on "The Protection of Shade Trees in Cities." At this time the Lyman Entomological Collection was opened for inspection.

During the season the following papers and talks were given before our Society:—

1. President's Annual Address A. F. WINN.
2. An account of insects in vegetable plots DR. CORCORAN.
3. Tussock moths DR. F. S. JACKSON.
4. A trip to the Provincial Forest Nursery, Berthierville, Q. A. F. WINN.
5. A few moths from Bondville, Q., 1917 A. F. WINN.
6. Notes on bees G. H. HALL.
7. Report of annual meeting of Ent. Soc. of Am. at Pittsburg,
Pa. DR. CORCORAN.
8. Notes on the Geometrid species of Genus, *Acidalia*, *Guenesia*,
Cabera G. CHAGNON.
9. Hemiptera found in a backyard garden, 1917 GEO. A. MOORE.
10. Description of Entomological work in England, 1917 LACHLAN GIBB.
11. *Chilo comptulatalis* Hulst A. F. WINN.
12. The protection of shade trees in cities J. M. SWAINE.
13. E. P. Van Duzee's catalogue of Hemiptera of America GEO. A. MOORE.
14. Collecting in England, 1917 LACHLAN GIBB.
15. The Daylight Saving Act, what it will do for Entomologists.. A. F. WINN.
16. Directions for collecting and preserving Orthoptera for the
cabinet G. CHAGNON.

The Treasurer's Report showed a balance of \$150.93.

The following were elected as officers for the coming year:—

- President* A. F. WINN.
Vice-President G. CHAGNON.
Secretary-Treasurer GEO. A. MOORE.
Librarian G. CHAGNON.
Council G. A. SOUTHEE, DR. CORCORAN, J. G. HOLMES, G. H. HALL.

Respectfully submitted,

GEO. A. MOORE, *Secretary*.

REPORT OF THE TORONTO BRANCH.

The 217th meeting and 22nd Annual Meeting of the Toronto Branch of the Entomological Society of Ontario, was held in the Biological Building of the University of Toronto, Nov. 21st, 1918, the President, Dr. Clemens, in the chair. The minutes of the previous meeting were read and approved. The report of the Council, the financial statement, and the report of the Librarian were presented and adopted.

The report of the Council showed that during the season of 1917-1918, six regular meetings, one special meeting, and the Annual Meeting were held in

the Biological Building of the University of Toronto. The average attendance at the regular meetings, including visitors, was 15 persons. During the season the following papers were read before the Society:—

1917.

- Nov. 22. Life of Spring PondsDR. E. M. WALKER.
 Dec. 13. War Services of EntomologistsDR. W. A. CLEMENS.
 Summer Work of New York State Food Commis-
 sionJOHN DETWEILER.

1918.

- Jan. 24. The 1917 Collecting SeasonMR. H. V. ANDREWS.
 Feb. 15. Fruit FliesPROF. L. CAESAR, Guelph.
 Mar. 21. Fossil InsectsDR. A. COSENS.
 Apr. 4. Injurious Shade Tree Insects and their Control..MR. J. M. SWAINE, Ottawa.
 May 9. Personal Experiences with Tropical InsectsMR. F. J. HARRIS.

Seven new members were elected during the year: Messrs. D. E. Reid, B. Wright, Frank Foulds, John Detweiler, R. W. Blakely, F. J. Harris, F. Broderick.

We regret to record the death of two esteemed members, Mr. Samuel T. Wood and Miss Dorothy Fraser. Mr. Wood was well known among nature lovers throughout Canada by his charming writings, particularly the weekly editorials in the *Globe*, on various phases of wild life, and his loss is keenly felt by a large circle of friends, to whom he had endeared himself by his kindly, unassuming personality.

Miss Fraser who was on the staff of the Biological Department of the University of Toronto, graduated from this department in 1917 with the highest honours in Biology. She won the esteem and admiration of all her colleagues by her fine character, her unfailing industry in spite of delicate health, and her unusually keen scientific judgment.

At the meeting of December 13th, 1917, steps were taken toward the formation of a special committee for the purpose of organizing a campaign against the Tussock Moth in Toronto. This committee met five times between January and May. The following programme was drawn up and carried out:—

1. Stirring articles were written by several members of the Society and published in the daily papers. These articles dealt briefly with the destructiveness of the Tussock Moth caterpillars, methods of control, and the responsibility of the citizens in helping to combat the pest.

2. On April 4th a special joint meeting of the Toronto Branch, the City Parks Department, and the Toronto Horticultural Society, was held in the large lecture hall of the Biological Building of the University of Toronto, at which Mr. J. M. Swaine gave a very able and interesting address on "Shade Tree Insects," dealing particularly with the Tussock Moth.

3. An attractive illustrated pamphlet was prepared, and 5,000 copies were printed and distributed to the schools of the city.

4. Through the courtesy of the City Parks Department, four sets of lantern slides were prepared, bearing the same illustrations as the pamphlets, and giving short concise directions for controlling the pest. These were circulated among various motion picture theatres in the city.

Special donations amounting to \$35.00 were contributed by the following gentlemen: Major R. J. Christie, Mr. James O'Brien and Mr. Paul Hahn.

The results from the campaign were very gratifying.

The financial statement showed a balance on hand of \$19.97.

The report of the librarian shows that a large number of pamphlets and periodicals have been added to the library during the season of 1917-18.

Special arrangements have been made with the Department of Biology, University of Toronto, in regard to filing and shelving space, and by which members of the Department may have access to the literature. Good progress has been made in re-arranging and cataloguing.

The publications received since the last meeting were presented.

The election of officers was then proceeded with, and the results were as follows:

<i>President</i>	DR. W. A. CLEMENS.
<i>Vice-President</i>	MR. H. V. ANDREWS.
<i>Secretary-Treasurer</i>	S. LOGIER.
<i>Librarian</i>	MISS NORMA FORD.
<i>Council</i>	DR. E. M. WALKER, DR. A. COSENS, MESSRS. T. B. KURATA, J. HANNIBAL, C. K. BROBST.

The business of the evening finished, the meeting was then left open for short talks by members and for discussion. The following members spoke:

C. K. Brobst on the Tussock Moth work in Toronto in summer of 1918.

Dr. A. Cosens, on "Observations on the Monarch Butterfly."

Mr. H. V. Andrews, on "A trip to Go Home Bay for *Oeneis chryxus*, var. calais."

Dr. E. M. Walker on "*Oeneis chryxus*, var. calais."

Mr. S. Logier, on "Observations on parasitized caterpillars."

Those present at the meeting were: President Dr. W. A. Clemens, Dr. Cosens, Dr. Walker, Miss N. Ford, Messrs. Kurata, Andrews, Harris, Reid, Wright, Hannibal, Blakely, Broderick, Brobst, Logier, and five visitors, in all, 19 persons.

Respectfully submitted,

SHELLEY LOGIER, *Sec.-Treas.*

REPORT OF THE BRITISH COLUMBIA BRANCH.

The 17th Annual Meeting of the British Columbia Branch was held in the City of Victoria, B.C., Saturday, February 23rd, 1918. The morning session was called to order by President E. H. Blackmore. Secretary William Hugh handed in his financial statement and read a report of the Society's work during the past year.

The following papers were read and discussed:—

President's Address	E. H. BLACKMORE.
Notes on the Classification and Bionomics of the Hemiptera	WM. DOWNES.
Collecting in the Lillooet District—A trip to Mount McLean ..	A. W. PHAIR.
Life History of <i>Perigrapha praeses</i> Grt.....	GEO. O. DAY.
On Parthenogenesis in the Honey Bee	WILLIAM HUGH.
Insect Notes of the Year	R. C. TREHERNE.

Afternoon Session.

Notes on the Mycetophilidae of B. C.:

A Revision of the B. C. species of the genus *Hydriomena*
based on the character of the male genitalia E. H. BLACKMORE.

Notes on the Aeolothripidae R. C. TREHERNE.

Natural Control Investigations in B. C.:

Life History of the Leaf-Eating Crane Fly, *Cylindrotoma*
spendens, Doane (Diptera, Tipulidae) DR. A. E. CAMERON.

The following were elected to the several offices for the year 1918:—

<i>Hon. President</i>	F. KERMODE, Provincial Museum.
<i>President</i>	R. S. SHERMAN, Vancouver, B.C.
<i>Vice-President</i> (Interior)	J. W. COCKLE, Kaslo, B.C.
<i>Vice-President</i> (Coast)	WM. DOWNES, Victoria, B.C.
<i>Hon. Secretary-Treasurer</i>	WILLIAM HUGH, Box 20, Cloverdale, B.C.
<i>Advisory Board</i>	MESSRS. E. H. BLACKMORE, R. C. TREHERNE, G. O. DAY, A. W. HANNAM, L. A. BREUN.

The Society offered the Vancouver Exhibition Association two prizes for the best collection of types of beneficial and injurious insects put up by school children.

REPORT OF THE NOVA SCOTIA BRANCH.

Since our last report was presented to our parent Society a new number of our “Proceedings” has been issued, comprising approximately 100 pages and including considerable new data on Nova Scotian insects and the problems connected with their control. Another Annual Meeting was held on July 26th of the present year, when a number of papers were read by the members and a successful session was held. The speaker of the occasion was Mr. J. D. Tothill, of the Dominion Entomological Branch, who gave a paper on “The Meaning of Natural Control.” The following officers for the year were elected:—

<i>Honorary President</i>	DR. A. H. MCKAY, Halifax.
<i>President</i>	L. A. DEWOLFE, Truro.
<i>Secretary-Treasurer</i>	W. H. BRITTAIN, Truro.
<i>Asst. Secretary-Treasurer</i>	E. C. ALLEN, Truro.
<i>Committee</i>	A. KELSALL, Annapolis Royal, and MISS AILEEN HENDERSON, Lawrencetown.

Like all other organizations our Society has suffered many inroads in its membership on account of the war. In spite of this we have been able to keep up our members to the pre-war level and are particularly fortunate in the fact that none of our members who have gone overseas have actually lost their lives in the great struggle. With the return of peace time conditions and the removal of all hindrances to our expansion, we are hopeful of healthy, vigorous growth from now on.

W. H. BRITTAIN, *Secretary.*

REPORTS ON INSECTS FOR THE YEAR.

DIVISION No. 3, TORONTO DISTRICT—A. COSENS.

The unusual abundance of the Monarch, *Anosia plexippus*, during the past two years, led me to hope that this season I could obtain a series of notes that would be of interest concerning this wide-ranging Canadian butterfly. In looking over these notes, however, I find only a few of sufficient importance to include in this report. This was owing chiefly to the butterflies not being sufficiently numerous to prevent an ebbtide in the enthusiasm of the early part of the season.

Concerning the first to arrive of the migrants from the south I have made the following note:—

June 15th. "Two specimens of *Anosia* were seen flitting about a few milkweed plants on the Old Belt Line, near the Humber; one of the butterflies appeared to be ovipositing, but the eggs could not be found."

The above apparently represents, in general, the date of the first appearance in Ontario of this butterfly, since it agrees with that noted by other observers. In 1900, Mr. C. W. Nash, Toronto, states that he saw the Monarch first on June 14th, and in 1901, Mr. J. A. Moffat, London, noted its arrival there on June 12th.

While the middle of June may be taken as the average date of their arrival in this Province, there must be at least isolated butterflies that return much earlier.

With reference to this I find in my notes:—

June 19th. "Mr. Martin saw, on milkweed plants, a nearly full-grown Monarch larva, also a much smaller one."

Later in the day we found the larger larva but did not get the smaller. The one we captured was one and three-fourths inches in length. The egg from

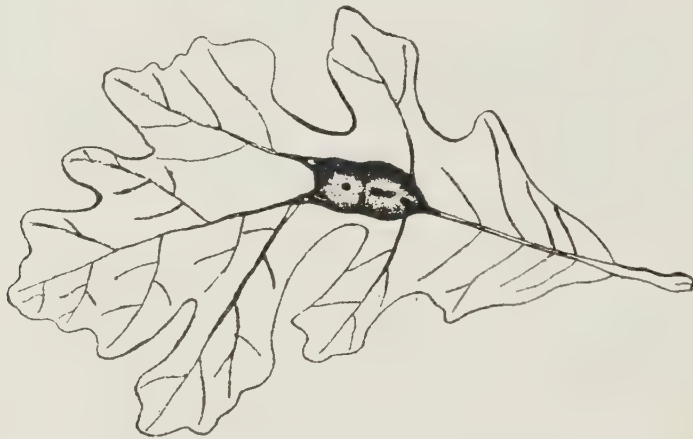


Fig. 1.—Gall produced by *Neuroterus flavipes* Gill on Bur Oak, *Quercus macrocarpa* Michx.

which this larva emerged must have been deposited the end of May or very early in June.

There are notes under two other dates in June.

June 24th. "*Anosia* butterflies plentiful around the milkweeds at Mimico Creek."

June 27th. "In the same locality as the preceding, caught three males and two female butterflies. These specimens were all much faded and worn, the wing margins were also badly torn. The butterflies were frequently mating at this time."

Nothing of interest appears to have been observed for a month, as the next note reads:—

July 27. "Many Monarch butterflies ovipositing, all the specimens captured were faded and torn. Larvæ were frequently seen, these varied from one-half to full-grown; ten of the latter were collected."

July 30th. "Several of the larvæ taken on the 27th have pupated."

With very little further feeding these larvæ eventually all passed into the chrysalid stage, and all emerged, sometime between the 9th and the 22nd of August, the exact date unknown owing to absence from the city.

Although these butterflies, during the last two seasons, gave ample opportunity, in this locality, of observing their congregating habits, I was not fortunate enough this fall to see a single flock.

I wish also to report the securing of the producers from a gall on Bur Oak, *Quercus macrocarpa*. These producers have been kindly identified by Mr. Wm. Beutenmuller as *Neuroterus flavipes* Gill.

The gall, which is polythalamous, is an elongated, irregular swelling from the midrib of the leaf, but also extending out slightly along the veins. It is somewhat triangular in cross section. Opening on the upper surface of the leaf, from which the gall chiefly projects, are minute canals, one passing to each larval chamber.

Length of gall parallel to the axis of the midrib 10-15 mm.

In all probability a revision of the Cynipidae will place this species in the genus *Andricus*, as it closely resembles *A. piger* Bassett and *A. petiolicola* Bassett.

The former is a polythalamous gall produced by the swelling of the petiole or midrib of the Scarlet Oak, *Quercus coccinea*. The latter is also located on the petiole or midrib of the leaf, but the host in this case is the White Oak, *Quercus alba*. It is an irregular, spherical swelling drawn out at some place on its surface into a short tapering projection. At the summit of this is an opening surrounded by a dense ring of coarse, brown trichomes.

DIVISION No. 5, PETERBOROUGH DISTRICT—F. MORRIS, PETERBOROUGH.

My report for the present year again deals chiefly with *Cerambycidae*. The first series of observations made relate to the obscure little *Anaglyptus*, Le Conte's *Microclytus* (or rather *Cyrtophorus*) *gibbulus*. This insect had been taken in considerable numbers in 1916 and 1917, feeding on choke-cherry blossom, dogwood and spiked maple, during the first three weeks of June. In the former season the blossom was well out by June 3rd, in the latter by June 10th. This season I made my way out to the place of capture about the middle of May, and found the corner of the wood where the insect had been prevalent already in the act of falling beneath the woodman's axe! It was too early for the blossom and there was no trace of the insect. Before paying the spot another visit, I decided to wait till the end of May. Soon after this decision, however, a hot spell brought the blossoms on with a rush, and I was dismayed on passing a woodyard in the city one day to see a shrub of choke-cherry in full bloom; next day (May 23rd) I hurried out to the "Wood of Desire" and found the shrubs actually shedding their bloom. I had missed the height of the insect's season. The air that day was cold, and I found only a single specimen. It was the more disappointing that I had arranged to go north over the week-end. However, on Tuesday, May 27th, I was back at the hunting ground and had the good fortune to find two or three trees of choke-cherry in a somewhat less exposed position on the margin of the wood; here I secured more than 20 of the insect, including five natural pairs secured from specimens taken home alive and mating in captivity. June proved a very poor blossoming season in our district, and almost no captures were made on dogwood, viburnum and spiked maple. Beyond a single specimen of *M. gibbulus* taken on dogwood on June 1st, I saw no further trace of this elusive little insect. In each of the last three years when it has been captured, the season of its prevalence has been limited to a fortnight and is practically dependent on the blossoming of the choke-cherry clusters; viz., 1916, June 4-18; 1917, June 9-24; 1918, May 20-June 1.

On May 24th, while at Lake Catchacoma, some 30 miles north of Peterborough, I found an extraordinary number and variety of insects drawn in the hot sun to the choke-cherry clusters; besides about 10 species of Longicorn, there were a large number of species of Chrysomelians, Scarabs and Elaters; among these last, three species of *Corymbites* including *C. hamatus* and *C. vernalis*; but the most interesting by far to me of the day's bag was a pair of the very handsome Cantharid, *Pomphopoea aenea*. Only once before had I ever seen this insect, and that was at Port Sydney towards the end of June, when I found a pair on the Nannyberry (*Viburnum lentago*). It is a large insect of a beautiful grey-blue-green shade and of satiny texture; the antennae black, and the legs orange-yellow with black knees and feet. Of the species I am not quite sure; Dr. Bethune who kindly identified the earlier capture thought it *P. sayi*, but according to Blatchley the yellow and black legs belong to *P. aenea*. This had been 1909, for it was just a few weeks before Dr. Brodie's death, with whom I was staying in North Muskoka at the time.

On the first of June I captured two specimens of the so-called Currant-borer (*Psenocerus supernotatus*) settling on a newly fallen poplar stem. On June 10th while ranging about a tamarac swamp for *Pyrola* and *Cypripedium*, I had the good fortune to capture a breeding pair of *Tetropium cinnamopterum* resting in the shadow on the underside of a recent windfall of white spruce, the only tree I have ever captured this insect on. On June 15th—rather an early record—while foraging about at the “Wood of Desire,” I spied a specimen of *Desmocerus palliatus*, flying from a small clump of the late elder; examination of the shrubs led to the capture of a dozen of these handsome borers; they had evidently just emerged and were crawling up into the sunlight from the stems, a few were already pairing and taken at rest on the underside of the foliage. A specimen of *Goes oculatus* was taken the same day on newly fallen poplar. On June 18th, while exploring a very rich corner of tamarac swamp, I made two finds especially that awoke happy memories; after an interval of 19 years, I found again that local rarity among the orchids, *Orchis rotundifolia*, and on the swamp Valerian—just as three years before near Trenton—I found *Leptura chrysocoma* feeding on pollen. Between June 18th and 20th, I took three specimens of this beetle always among tamaracs. On June 25th, I captured a specimen of *Saperda tridentata* on an elm log, and on a large billet of poplar in a woodpile, a pair of *Pogonochaerus mixtus*.

On June 29th and 30th, during a short stay in Port Hope, I paid a visit to some woods four miles north where a season or two before the woodman's axe had been very busy—far too busy, for every windstorm since has taken heavy toll of the surviving timber. The work of tramping in hot sunshine through bush, and stumbling or slipping on hidden logs and stumps was very exhausting, but a number of interesting captures were made. Among these, one *Leptura zebra* on the sheaf of foliage about an oak stump, five *Neoclytus erythrocephalus* taken running on the trunk and limbs of two fallen trees, a basswood and a butternut, one *Clytus marginicollis* on white pine, three *Physocnemum brevilineum* on fallen elm, three *Leptostylus sex-guttatus* in brush-heaps of white pine, one *Leptostylus macula* on basswood, one *Goes oculatus* and one *Urographis fasciatus*, both resting on the underside of a lodged trunk of maple, three *Hoplosia nubila* on basswood, two *Lepturges symmetricus* and one *Eupogonius subarmatus* on a recent windfall of basswood.

On July 4th a trip from Peterborough to the “Wood of Desire” proved very

successful: among other captures, two *Liopus variegatus* on fallen poplar, one *Lepturges querci* on sumac, one *Xylotrechus undulatus* on spruce, two *Desmocerus palliatus* from the same little clump of late elder as had yielded several captures nearly three weeks earlier, two *Oberea tripunctata* and one very small and faintly marked specimen of *Clytanthus ruricola* on raspberry foliage. Next day, on a dead branch of sumac I took a specimen of *Neoclytus erythrocephalus*. On July 6th I took a specimen of *Hoplosia nubila* near Chemong from the same dead limb of basswood as yielded over a score last season. On July 8th, three *Liopus alphas* from dead or dying sumac branches. On July 11th in the heart of a large tamarac swamp on various blossoms including yarrow, daisies and fleabane (feeding on pollen in the hottest of sunshine) 19 *Leptura chrysocoma*, and on the edge of the swamp in milkweed blossom, three *Typocerus velutinus* and two *T. zebratus*; I strongly suspect *L. chrysocoma* to bore in the tamarac, for I have never found it far from that tree. On July 17th, I took fifteen *T. zebratus* on blossom of sumac and milkweed, and one *Leptostylus macula* on a dying branch of sumac.

On July 18th, while with a brother botanist on a corduroy road in a tamarac swamp north of Bethany, I noticed a strange butterfly that at first I took for a fritillary or silver-spot; on capture it proved to be the very beautiful "Baltimore," *Melitaea phaëton*. Investigation in September showed a plentiful growth at the roadside of *Chelone glabra* or Turtlehead, the food plant of this insect's larva.

On July 20th, I paid a farewell visit to the "Wood of Desire" before going north to camp in the Algonquin Park. The day was spent following in the wake of the axe; here were taken, running on white pine logs that lay scorching in the sun, three *Neoclytus muricatus* (including a mating pair); one *Urographis fasciatus* resting on foliage of a basswood stump; *Lepturges pictus* on a dying branch of basswood; these were all in the open or on the edge of the wood; in the depths among a confusion of felled hemlock, spruce and balsam, I took two *Leptura subhamata* and three *Xylotrechus undulatus* all on spruce.

The active collecting for the season came to an end between July 27th and August 3rd in the Park with the capture of some *Leptura canadensis* and four specimens of *Leptura biforis*, taken in flight about our little camp clearing on Big Island in Cache Lake.

DIVISION No. 6, ESSEX DISTRICT—J. W. NOBLE, DEPARTMENT OF AGRICULTURE, ESSEX, ONT.

ATTACKING FIELD CROPS. Wireworms, white grubs, cutworms, grasshoppers, crickets. Considerable damage was done in the spring by white grubs to strawberry beds, wireworms to potatoes, cutworms to cabbage and tobacco plants, especially to the latter; a considerable acreage of tobacco had to be replanted on account of the ravages of the cutworm. In July owing to the very hot weather we had more trouble with grasshoppers and crickets than has been experienced in this county for some years. Grasshoppers stripped considerable vegetation but largely confined their energy to cutting binder twine after the sheaves had been tied. Many reports have been received in some instances where crickets and grasshoppers had destroyed binder twine in wholesale quantities. Clover seed midge was reported from a number of fields, but is not believed to be common throughout the county. Hessian fly: some reports of injury during fall of 1918.

ATTACKING FRUIT TREES. Codling Moth very plentiful especially in uncared for orchards; considerable damage done in orchards that had not been sprayed, about three broods reported in many instances.

Plum Curculio very plentiful in plum orchards this season, considerable damage to apples.

San José Scale appears to be considerably winter killed during severe winter of January, 1918, still quite plentiful in uncared for orchards.

Tent caterpillar not common, few nests seen. Fall webworms rather plentiful.

Aphids. Considerable damage to tree fruits, very effectively controlled by tobacco decoction.

Peach tree borer very plentiful especially on trees which winter killed last winter.

Apple Maggot noticeably plentiful in one orchard, very little damage on the whole.

FRUITS AND VEGETABLES. Melon aphid and cucumber aphid again this season accounted for a great loss among the cucumber and melon growers but after the experience of last year a great many fields were saved by early spraying, tobacco decoction being the most popular remedy.

Onion thrips very plentiful in the Pelee marsh, no remedy as yet found satisfactory.

Onion root maggot again very plentiful, considerable acreage lost.

Asparagus beetles plentiful but as the acreage is limited very little reported.

Capsids were considered by Dr. Bethune to have been the cause of white spots appearing on the early tomato crop. Upon careful examination no insects were found and no cause could be located. It occurred in two fields and accounted for considerable loss.

Squash bugs and cucumber beetles. Considerable loss to the pickle growers resulted from these insects. Trapping was tried but with little success, application of a repellant seemed to have only partial results.

Greenhouse Insects. Greenhouse men experienced considerable trouble during the winter of 1917-18 with greenhouse white fly and with aphids. Nematodes were also plentiful. The best growers, however, practised soil sterilization and occasionally fumigated with hydrocyanic gas.

THE PRESIDENT: I shall now ask Father Leopold to read his paper on "Economic Entomology in Quebec."

FATHER LEOPOLD: Mr. President, I was so anxious to secure further information on spraying that I did not prepare a paper but a series of questions which I hope you and other entomologists who have been studying spray mixtures will answer. I believe this will be of more value than my paper would have been. My questions are:—

1. What spray mixtures should I recommend to our people next year for apple orchards?

2. Is it true that Bordeaux mixture causes very great injury by russetting the fruit? If so, which application causes most of the russetting?

3. What recommendations should be made in regard to dusting?

THE PRESIDENT: As neither Mr. Sanders nor Prof. Brittain are here from Nova Scotia I shall ask Dr. Hewitt to tell us something about Mr. Sanders' results and what he intends to recommend this year in Nova Scotia.

DR. HEWITT: I cannot, of course, respond to your request with as much satisfaction to those who are interested in this subject as Mr. Sanders would have been able to give had he been here.

Owing to what appears to be an injurious effect of lime sulphur in reducing the crop of apples in Nova Scotia, Mr. Sanders turned his attention to Bordeaux mixture which had been almost entirely given up in favor of lime sulphur as the fungicide in apple spraying. While it is, of course, not our function to investigate fungicides we were compelled to study them as carriers of insecticides. In Nova Scotia there is not the same demand for a scale destroying spray such as lime sulphur as in Ontario owing to the absence of San José Scale, the existence of which insect was chiefly responsible for the adoption of lime sulphur in other parts of the country.

Coupled with the scaleicide properties of lime sulphur was its easy preparation and the powerful advocacy of the manufacturers. We found that when Bordeaux was substituted for lime sulphur in certain of the sprays we obtained better results both from the point of view of production and condition of the foliage; we also found that the trouble of russetting could be obviated by not using Bordeaux in the third spray, that is, the spray when the blossom petals have fallen which is apparently the period when the setting fruit is most susceptible to the Bordeaux injury.

In view of the excellent results that we obtained in our experimental plots and that have been obtained by some of the more prominent fruit growers in Nova Scotia, we are recommending the use of Bordeaux mixture instead of lime sulphur in the first, second and fourth sprays. In the third spray we find that sodium polysulphide has given us the best results. As an insecticide we are recommending in each spray the use of arsenate of lime.

We have felt that far too little is known with regard to the chemistry and bio-chemistry of spraying. Spray mixtures have often been recommended without a careful study of their chemical constitution or of their effect on foliage, fruit or insects. Accordingly, we are now making a very careful study of the chemical nature of the different compounds that result from mixing various insecticides with fungicides and of the effect of such compounds on the trees and on the insects that they are expected to destroy. By these means we hope to secure exact data that will enable us to experiment to better advantage and to secure results of real value.

But after all, I feel that the ultimate test will be made by the fruit grower who will be the best judge as to the sprays giving the best results, and after having carried out our investigations to the best of our ability we shall have to be content to leave the matter in the hands of the grower. If we can demonstrate to him the superiority of one spray over another he is generally willing to be convinced and to act according to our advice. Further, it is a mistake to assume that a spray combination that is the best in one fruit growing section of the country will be the best in another. Spraying systems must be worked out to suit the various localities. The day of the universal spray calendar has long passed and for this reason we are endeavoring to study our spraying problems locally.

PROF. CAESAR: I shall briefly answer Father Leopold's questions and then ask Prof. Parrott to give us the benefit of his experiments in New York State.

I myself intend to recommend as usual lime-sulphur for the first spray, that is the one given either before or as the buds are bursting or just after they have burst. For the second spray, the one just before the blossoms burst, I shall recommend either lime-sulphur, 1 gallon to 35 gallons of water, or Bordeaux mixture, 4.4.40. and to each of these either arsenate of lead or arsenate of lime. For

the third application, the one just after the blossoms have fallen, I shall recommend lime-sulphur 1 gallon to 40 gallons of water, and the usual amount of arsenate of lead.

At present I do not feel like advising against the substitution of arsenate of lime for arsenate of lead with lime-sulphur, though I am not yet convinced that it is so safe. A warning, however, should be given, that some brands of arsenate of lime are much inferior to others and much less safe.

In a very wet period I should prefer Bordeaux to lime-sulphur for the spray just before bloom, because it will remain on the trees longer and thus keep off scab longer than lime-sulphur. I do not recommend it for the third application because it russets the fruit, some years very badly and every year to some extent.

As to the dropping of fruit which follows later applications of lime-sulphur in Nova Scotia, this has not taken place in Ontario in my own or any other person's experiments that I am aware of. I believe the difference in climate between the two Provinces accounts for the different results obtained.

As to the dust method of treating orchards, I do not intend to recommend it for the present. I have obtained good results from it myself but the fruit growers do not succeed well with it. They also object to the cost. The new spray guns have made them much better satisfied with liquid sprays.

PROF. PARROTT: In our State I believe we have more pests to combat than you have in your fruit growing sections. We have San José Scale, and use lime-sulphur because it is cheap and nearly fool-proof from the standpoint of the farmer. We have the Pear Psylla, which is a very common pest in our pear growing sections, and we rely on lime-sulphur to combat that insect; and we have the various mites which are held in check by sulphur sprays. Considered from the standpoint of the dormant application we have to consider some spray mixture which will handle those particular pests.

Our change from Bordeaux to lime-sulphur was brought about by the attitude of our fruit growers. There was a period in the '90's and ten or fifteen years ago when growers suffered severe injury from Bordeaux mixture. As a result of this injury the farmers swung over to the use of the lime-sulphur, because the fruit presented so much better an appearance from its use. As far as New York is concerned (and I think I am safe in speaking for the men at Cornell as well of those of the New York Experiment Station) we would not dare to recommend Bordeaux to apple growers in our State; it causes too much injury.

I have been very much interested in the question of dropping of fruit. It seems to me it is one of the points which should be looked into. For two years we have carried on comparative experiments with lime-sulphur and arsenate of lead and Bordeaux mixture and arsenate of lead, and in 1917 we had a larger drop on the check trees than on those sprayed with lime-sulphur and arsenate of lead or Bordeaux mixture and arsenate of lead.

We tested nine brands of calcium arsenate this summer and also tested a formula given by our Federal Government for home-made calcium arsenate. In the work on the station grounds we had no injury, not even yellowing, in any plot sprayed with a commercial brand, notwithstanding the fact that we gave all four applications. We had, however, serious yellowing following the second application of the home-made preparation.

A point was made in regard to dusting. There is involved a consideration of the fact that in certain districts of New York the red bugs are a most injurious pest. We have no contact dusting material which favorably controls them. I doubt whether dusting will get very much encouragement the coming season.

INSECTS OF THE SEASON IN ONTARIO.

W. A. ROSS, DOMINION ENTOMOLOGICAL LABORATORY, VINELAND STATION, ONT.,
AND L. CAESAR, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

ORCHARD INSECTS.

SAN JOSÉ SCALE (*Aspidiotus perniciosus*). The severe winter of 1917-18 destroyed a very high percentage of the scale. Inspectors from all scale districts report less of this insect this year than for many years. In two Woodstock orchards infested for at least the past ten years, it has, so far as the Provincial Inspector could judge, completely disappeared, no live scale being found on fruit or branches in October.

GREEN APPLE APHIS (*Aphis pomi*). During the summer there was a widespread outbreak of the Green Apple Aphis. In most orchards the infestation did not attain serious proportions until about mid-July, and from then on it was somewhat rapidly brought under control by hot, dry weather and by insect enemies, until by the second week of August comparatively few aphids were left on the trees.

In most cases no great damage was caused by the aphis apart from coating the fruit with the sooty honeydew fungus. Fortunately, most of this was washed off before picking time by heavy rains.

WHITE-MARKED TUSSOCK MOTH (*Hemerocampa leucostigma*). In view of the abundance of the tussock moth egg masses on orchard trees last fall, the outbreak of this season came as no surprise. Apple and plum orchards throughout the Niagara District and Western Ontario were badly infested and much damage was done to the fruit.

Fortunately for all concerned, the tussocks were parasitized so heavily by hymenopterous and tachinid parasites that only an insignificant number reached the adult stage. We can safely look forward to next year as a season of comparative immunity from this pest.

PEAR AND CHERRY SLUG (*Caliroa cerasi*). During June and July, cherry, pear and plum trees in various parts of the Province were seriously injured by this insect. In many orchards the foliage, particularly of sour cherry trees, was almost wholly destroyed. At picking time much of the fruit on badly infested sour cherry trees was wizened, slug-eaten and unfit for sale.

A very large percentage of the second generation eggs were destroyed by a minute parasite, *Trichogramma minutum* Riley.*

PEAR PSYLLA (*Psylla pyricola*). This pest was again very abundant in various pear orchards from Burlington to the Niagara River. It is worth while recording here that large numbers of trees which had been seriously injured by pear psylla in preceding seasons succumbed to the low temperatures of last winter.

FRUIT TREE LEAF-ROLLER (*Tortrix argyrospila*). This insect has apparently almost completely disappeared east of Toronto, but there are some indications that it may be on the increase in the south-western part of the Province. At Simcoe, it caused considerable loss to Greenings. At Ancaster, there are a good many egg masses, indicating that in this locality there will likely be considerable injury from the leaf roller next year.

*Species determined by Mr. A. B. Gahan, U. S. Bureau of Entomology.

CHERRY FRUIT FLIES (*Rhagoletis cingulata* and *fausta*). In the Burlington and Niagara Districts, the crop in some unsprayed orchards of Montmorency and Morello cherries was a complete loss because of the large percentage of wormy fruit.

The severe losses caused by the fruit flies last year induced nearly all the larger growers to spray this season. No sweetening was used, and in many cases a fungicide was added to the poison without detriment to the efficiency of the treatment.

A braconid parasite, *Opius ferruginea* Gahan,* was found in fairly large numbers ovipositing in maggot-infested fruit in an orchard near Jordan, and in another orchard at Burlington. The same species was bred from wormy cherries in late August and early September.

BUD MOTH (*Tmetocera ocellana*). East of Toronto and in parts of Western Ontario, the bud moth was very prevalent this spring.

LESSER APPLE LEAF-ROLLER (*Alceris minuta*). In September, a farmer of Bruce County wrote for information about a caterpillar that folded apple leaves over and fastened the edges together. Specimens were asked for but when he went to gather them on October 29th, he found the larvæ had deserted the leaves. This fact and the description given of the caterpillar and its work indicate almost without doubt that the species was *Alceris minuta*. The farmer stated that almost every leaf in the orchard was folded. The Lesser Apple Leaf Roller is not common in Ontario.

THE RED-HUMPED APPLE WORM (*Schizura concinna*), the YELLOW-NECKED APPLE CATERPILLAR (*Datana ministra*), and the FALL WEBWORM (*Hyphantria cunea*) were prevalent in the Niagara and Burlington districts.

THE PEAR THRIPS (*Taeniothrips inconsequens*). This species, hitherto unrecorded in Ontario, was taken on pear trees last spring in a large orchard near Beamsville. Fortunately, the thrips was present in very small numbers and apparently was not causing any appreciable injury.

It is highly probable that this insect has been present in the Niagara district for a number of years and has not been observed heretofore simply because it has never assumed economic importance.

INSECTS INJURIOUS TO SMALL FRUITS.

BLACKBERRY LEAF-MINER (*Metallus bethunei* or *M. rubi*). This miner, though very abundant last year, was even more abundant this year. Practically every leaf in several plantations had from one to fifty mines, and nearly all the older and lower leaves died and fell off in late July and early August. These were replaced by new foliage which in turn became mined in September. All efforts to control the insect failed. In experiments conducted at Burlington large numbers of adults were poisoned by spraying the leaves with sweetened arsenate of lead. It was found, however, that to be effective the spray would have to be applied daily for almost a month because the adults continued to emerge for about that long, and they were found to feed only upon the mixture before it dried, paying no attention to it after this.

In experiments with contact insecticides the sawflies were easily hit but even when drenched with kerosene emulsion, usual summer strength, or with whale oil soap 1 lb. to 4 gals., they recovered as soon as dry and were quite uninjured.

*Species determined by Mr. A. B. Gahan, U. S. Bureau of Entomology.

Last year many parasites were present but this year there were very few cases of parasitism seen.

STRAWBERRY WEEVIL (*Anthonomus signatus*). This species was unusually destructive in Halton County and in the Niagara district. In many strawberry plantations, especially in those adjoining wood-lots, from 30 per cent. to 50 per cent. of the crop was destroyed by this pest.

In a strawberry plantation at Vineland the depredations of the weevil were apparently completely checked by a heavy application of sulphur and arsenate of lead dust (80 parts of sulphur, 10 parts arsenate of lead, 10 parts filler).

STRAWBERRY LEAF-ROLLER (*Ancyliis comptana*). At Burlington on July 25th many strawberry leaves were found infested with this roller and numerous moths could be seen flying over the plants late in the evening. All stages of the insect—eggs, larvæ, pupæ and adults—were to be found at that date. Comparatively little injury was done. Growers say that the insect, although common for years, has not caused much loss.

RED SPIDER (*Tetranychus bimaculatus* or *T. telarius*). During the latter part of July raspberry bushes in the Vineland district were seriously injured by the red spider.

INSECTS INJURIOUS TO TRUCK CROPS.

CABBAGE ROOT-MAGGOT (*Chortophila brassicae*). This pest has seldom been more destructive to cabbage, cauliflower and radish than it was this year. Complaints were received concerning it from all parts of the Province. In Carleton County considerable loss was caused on some farms by the maggots attacking and destroying young turnips.

ONION MAGGOT (*Hylemyia antiqua*). This insect, though not so abundant as the cabbage root-maggot, was present in considerable numbers in many localities.

SEED CORN MAGGOT (*Chortophila fusciceps*). Not nearly so many complaints of injury to beans from this maggot were received this year as last. Seed potatoes in the vicinity of Brantford were badly attacked. A few complaints of injury to beans, seed corn, and potatoes were received from other districts.

CABBAGE WORM (*Pontia rapae*). In the Niagara district this pest was unusually abundant.

BEET LEAF-MINER (*Chortophila vicina*). Numerous mines caused by this miner were seen at Guelph and Burlington on beets and a considerable number on mangels. On July 2nd many eggs were to be seen on the under surface of the leaves. Nearly all these eggs or the maggots from them must have perished, for very few mines were observed after that date.

PARSNIP WEBWORM (*Depressaria heracliana*). This species was decidedly destructive to the parsnip seed crop in parts of Western Ontario, and at Guelph and Vineland.

CARROT RUST FLY (*Psila rosae*). Specimens of carrots injured by this fly were received from Guelph, Fergus, Toronto, Shelburne, St. Mary's and Listowel.

CUTWORMS: Corn and garden crops suffered to a considerable extent from cutworm injury.

INSECTS INJURIOUS TO FIELD CROPS.

For the most part, field crops were injured very little by insects.

WHEAT INSECTS. The Wheat Midge (*Thecodiplosis mosellana* Gehin) which caused so much alarm in 1917 was not at all abundant this year. In rearing

cages at the Vineland Station Entomological Laboratory, adult midges emerged from June 18th to July 4th, most of them coming out about June 23rd and 24th.

While looking into the wheat midge situation, a slight amount of Hessian Fly (*Mayetiola destructor*) injury was noticed near Ridgeway, Welland County, and in two wheat fields near Beamsville, the Wheat Joint Worm (*Isosoma tritici*) in considerable numbers was found at work.

WIREWORMS. According to Mr. H. F. Hudson, the oat crop in Caradoc, Middlesex, was seriously injured by the wireworm, *Agriotes mancus*.

MISCELLANEOUS PESTS.

WARBLE FLY (*Hypoderma bovis*). Numerous complaints of cattle gadding were received. Farmers who had not previously seen their cattle stampeded in this way and who learned that a fly was the cause, became much alarmed lest the pest should increase.

It looks as if *Hypoderma bovis* were becoming more abundant and more widely distributed through the Province. In some districts, however, it does not seem to be present yet, for stock men in these claim they never saw their cattle gadding.

ROSE MIDGE (*Dasyneura rhodophaga*). This undesirable alien, already well established in a large rose garden near London and in Toronto greenhouses, has invaded another part of Ontario, viz., Port Dover, where it was found this year at work in Messrs. Ivey & Sons' greenhouses.

In order to prevent the further spread of the midge, the following recommendations have been made to florists:—

- (1) Whenever possible, growers should propagate their own roses.
- (2) New stock should be obtained from non-infested greenhouses.
- (3) Rose plants and scions purchased through commission houses or from places not known to be free of midge, should be imported before the end of February. This recommendation is made because such stock, provided it has been planted in November or December, will not have been exposed to infection.

(4) Greenhouse roses brought in later than the end of February should be carefully examined for rose midge injury, and any infested plants should be destroyed. In addition to this, the soil should be washed off the roots of the plants and should then be thrown into the furnace or scalded with hot water or steam.

ROSE LEAF-ROLLER (*Cacoecia rosaceana*). During March this insect was remarkably abundant on roses in a Toronto greenhouse.

NEMATODES. Cyclamen were seriously injured by Nematodes in a Hamilton greenhouse. The species concerned was not determined.

CHERMES. The galls made by *C. abietis* and *C. similis* were more conspicuous on spruce trees this season than they have been for several years.

LADYBIRD BEETLES. *Coccinella 9-notata* and *Adalia bipunctata* were remarkably common this year. The latter species was very frequently found in large numbers this fall in dwelling houses in the Niagara district.

POWDER POST BEETLES (*Lyctus striatus*). This beetle was found infesting and seriously injuring oak floors, base-boards, and an oak cupboard in a Vineland house. Some of the wood in the cupboard was badly worm-eaten. A species of *Lyctus* was also found injuring woodwork in a church in Hamilton.

PROF. PARROTT: I should like to hear from Mr. Ross regarding the distribution of the pear thrips. We find it both on pears and apples in Western New York. So far, it has only been injurious with us in the Hudson River

Valley. There it is very destructive and is found in varying numbers from season to season.

MR. ROSS: This season I found the thrips only on pear and in only one locality—Beamsville. Next year I am going to look into the question of distribution more thoroughly. I should like to ask Mr. Davis if he can tell us anything about the Rose Midge.

MR. DAVIS: I cannot tell you any more than what little I have published.

MR. ROSS: Do you know if it occurs all over the United States?

MR. DAVIS: Everywhere east of the Mississippi River. In connection with the control of the midge, what you and others have published is all that is known concerning it.

MR. ROSS: Mr. Sasser of the U. S. Bureau of Entomology obtained absolute control in a Baltimore greenhouse by fumigating with tobacco smoke and at the same time covering the soil with tobacco dust. He fumigated the house as long as the adults were seen. He also sprayed the sidewalks with kerosene emulsion

INSECTS OF THE SEASON IN QUEBEC DISTRICT, 1918.

GEO. MAHEUX, QUEBEC.

The summer of 1918 may be considered normal, as regards the insects injurious to cultivated plants. We did not have to register any real plague, and the common insects only appeared in rather small numbers. Only one pest appeared to have increased in numbers, and this one has worked more damage than usual in this district; it is the potato flea beetle, *Epitrix cucumeris* Harr.

On the other hand, the Colorado potato beetle, although well represented, shows a decrease compared with 1917. Certain districts in the northern part of the Province, such as the Lake St. John district, were visited by only a few individuals. It is advisable to note here that if the severe winter we have had has contributed to the partial bankruptcy of the multiplication of pests, it is equally important to emphasize the fact that for two or three years the use of insecticides and sprayers has spread considerably. Moreover, the inquiries we are receiving throughout the summer from farmers, and which are continually increasing, show the importance that the latter now attach to the question of the protection of plants. We consider as a remarkable improvement the fact that at least 80 per cent. of farmers use an efficient insecticide for their potatoes. The sale of sprayers yearly increases in a wonderful manner, and before long the great majority of farmers will own a good spraying machine.

The potato flea beetle, *Epitrix cucumeris* Harr., bored through the leaves of tomato plants as well as potatoes, but the other vegetables only suffered an occasional injury. Poison sprays check them rapidly.

The various Cruciferae of our gardens have had to stand the attacks of numberless cabbage worms (*Pieris rapae* L.). It was, without any doubt, the most injurious pest of the season. Much difficulty was experienced to gather cabbages and cauliflowers that were not infested. The cabbage maggot (*Phorbia brassicae* Bouché) like the cutworms, caused only insignificant damage.

In most of the war gardens, which had been fallow lands for a long time, potatoes were injured by white grubs (*Lachnosterna* sp.); 10 per cent. of the crop was spoiled for this reason.

In a few places, the Zebra caterpillar (*Ceramica picta* Harr.), the corn maggot (*Phorbia fusciceps* Zett.), the pea weevil (*Bruchus pisorum* L.) made themselves known, but without causing any serious loss.

Aside from injurious insects, slugs showed up in large numbers and worked considerable havoc in bean crops, which failed in many districts.

The only insect on fruit shrubs worth mentioning was the imported currant worm (*Pteronus ribesii* Scop.), which destroyed a number of currant and gooseberry bushes. On the other hand, the currant aphid (*Myzus ribis* Linn.), which was very numerous last year, was hardly represented this year.

Satisfactory conditions prevailed in orchards; very few apple aphid, a few caterpillars, *Datana ministra* Dru., *Schizura concinna* S. & A., and *Hemerocampa leucostigma* S. & A., the latter being the most numerous. As regards the rest, conditions were about normal. A good many tussock moth caterpillars were noticed on ornamental trees, as well as a few spiny elm caterpillars (*Vanessa antiopa*).

APHIDS; THEIR HUMAN INTEREST.

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The aphids, or as they are commonly called, plant lice, are among the most interesting of all insect forms. Their importance from several standpoints only adds to the interest which their peculiar habits arouse and their wide distribution and abundance force them on the attention of all those who are in any way interested in plant growth. Thus the early philosophers were attracted by these curious insects and were at a loss to understand their origin. Some claimed they were engendered of the dew, others that they developed from the waste products of ants.

The galls produced on plants by certain species are among the principal ingredients in the manufacture of inks and dyes. Galls of *Melaphis chinensis* are known on the market as nut galls or Chinese galls, and are used almost exclusively in some of the secret methods of sealskin dyeing. The trade in these galls alone reaches into the millions of dollars annually. The galls of this species were known and used by the Chinese many years before Europe learned of them and a rather extensive account is given in the Pên tsao kang mu. They are gathered, steamed and dried and are then ready for shipment. Galls of certain species of *Pemphigus* have been used for many years in Syria, China, etc., for the preparation of bright colored dyes for the fine silks which we value so highly, and these galls are listed on the market at a high figure. Some of the better known ones have been imported into this country and Europe but a large number of species remain yet unstudied and the uses to which their galls may be put are as yet unknown.

Most species produce in large quantities the substance known as honeydew. This is merely the excrement of the aphids, and not, as is very often supposed, a secretion of the cornicles or so called honey tubes. This substance has been known for many centuries, but its origin was in the early days not understood. Pliny speaks of it as the sweat of heaven or the saliva of the stars, and it was not until fairly recent times that its true nature was made known. The substance was gathered, however, in large quantities. The Arabs used it on their cakes much as we have all used honey in our boyhood days, and it is used in parts of the world as a medicine. In France it has been employed by the peasants

in diseases of the chest, and it has also been claimed to cure certain affections of the eyes. In Italy it has been used as a salve for the treatment of wounds and sores.

Honeydew is gathered and stored in large quantities by bees at certain seasons of the year when the nectar flow is low. While this is a disadvantage to the beekeeper in that he can not dispose of it, under the present laws, as pure honey it has the advantage of making available, with little expense, large quantities of honeydew. At present in this country the honeydew thus secured is nearly all used by our bakers in the making of cakes, etc. It is, however, a source of some of our rare laboratory compounds, and no doubt in the future will be used in the manufacture of products formerly imported at a high price, for it is available in large amounts. It is interesting to note that the cornicles were so long associated with honeydew. Morren¹ even claimed that they were employed in giving nourishment to the newly born young much in the way that the mammary glands supply nourishment to young mammals.

In recent years aphids have been associated with the transmission of important plant diseases. Prof. D. H. Jones² early indicated by his experiments that aphids are one of the factors in the transmission of pear blight. In connection with disease like mosaic and spinach-blight aphids have been credited with an important role but the study of the relation of these insects to plant diseases is as yet in its infancy.

It is claimed by some workers that large numbers of certain aphid species on forage plants are responsible for the injuring of cattle. In China and other eastern countries, on the other hand, some of the galls have been employed as food and as native medicines. In medicine they are employed chiefly as astringents, although they have also been used in other ways.

The relations between ants and aphids have been a favorite subject of study. In return for the honeydew many ants take great care of aphid colonies, building shelters for them, protecting them from their enemies and transferring them when necessary to new feeding grounds. Some even carry the young above ground during the warm sunny hours in spring and return them to their nests for the night. The writer has supplied ants with several hundred wingless aphids and watched these insects distribute them over the most tender feeding areas of a young tree there to start new colonies.

The peculiar habits of the species afford a field of study paralleled in few other groups. Alternation of hosts is commonly met with, and this habit adds to the difficulty of tracing life cycles. Some species on their primary hosts are remarkably different in structure from the same species on their alternate hosts. The writer has found that if species can be made to live on one host, forms which normally show characters associated with a secondary host will develop the characters, in part at least, of the forms occurring on the primary host. Thus races may be reared which have a definite relation to a given host and quite a definite structure. In some cases these races become more or less fixed after long periods, and it is with the greatest difficulty that they are again established on their original hosts. When this is done they ultimately reassume the characters associated with their original hosts.

The presence of winged and wingless forms has given rise to studies on wing production. This subject has been attacked from several standpoints. The

¹ Morren, Chas.—Ann. des Sciences Nat., 1836.

² Jones, D. H.—Bull. Ont. Agr. Coll.

occurrence of definite intermediate forms was pointed out by W. F. Turner³ and the writer. These forms retain the wings in a more or less rudimentary condition and they tend to lose also the other characters which are associated with the winged form. In some species like *Aphis pomi* DeGeer, it is possible to rear an almost pure apterous line and a line with a high percentage of winged forms. It is noteworthy that in certain aphid groups it is impossible to rear apterous forms while in the more specialized groups the winged forms are often absent for many generations. Sometimes a species may be reared for 100 or more generations without a winged insect appearing. It is thus evident that in the family nature has eliminated the wings to a large extent in the specialized groups.

Search has been made for the controlling factor here and several different ones have been claimed. Ewing⁴ worked from the standpoint of temperature and in *Aphis prunifoliae* Fitch (*avenae* of authors) was able to control the winged condition by varying the temperature. This species is one like *pomi* in which both winged and wingless forms are common. Ewing also obtained intermediates (calling them paedogenetic nymphs), adults between the winged and apterous condition. Several factors were not considered in his experiments. The affect of varied temperature on the availability of food and its nature when available was not ascertained and the genealogy of the specimens tested was apparently not considered.

Gregory⁵ worked with *Macrosiphum pisi* L., and obtained control by varying the food in the previous generation. With insects from different regions, however, she obtained slightly different results. Her experiments were conducted without a definite temperature control and without considering the descent of her insects.

Shinji⁶ has made experiments in feeding different chemicals to aphids and finds that he can define two groups of compounds one of which will result in the development of a high percentage of winged forms and the other of which will prevent wing development. His work follows that of Clark⁷ and is very interesting. It is noteworthy, however, that his experiments as recorded were conducted almost altogether during fall, winter or spring, and he gives no records of the ancestry of the specimens whereby we can judge of the percentage of winged or apterous forms which would normally be expected from the individuals treated. The writer has found that in some cases the offspring of an individual will be nearly all winged or apterous at the beginning of the period of reproduction and the reverse toward the end of the period. It is important to remember that Shinji was unable to produce any apterous forms in the aphid groups which have not yet eliminated the wings. That is, the ancestry of these forms was more important than his wing preventing substances. On the other hand, in groups which are nearly all apterous he did not experiment with his wing producing substances. It is curious that tannin is listed as preventing wing development and yet several species develop wings while feeding on galls containing 60 per cent. of tannic acid. On the other hand, sugar is given as a wing producing substance and yet the writer has reared an apterous line of *Eriosoma lanigera* for two years on galls containing an abundance of sugar. That Shinji overlooked some factors is evident for he says "*Macrosiphum rosae* also produced alate forms

³ Turner & Baker—Proc. Ent. Soc., Wash., XVII, No. 1, 1915.

⁴ Ewing, H. E.—Biol. Bull., XXXI, No. 2, 1916.

⁵ Gregory, Louise H.—Biol. Bull., XXXIII, No. 4, 1917.

⁶ Shinji, George O.—Biol. Bull., XXXV, No. 2, 1918.

⁷ Clark, W. T.—Journ. Tech., U. of Cal., I, No. 3, 1903.

even on a relatively younger shoot but it is utterly impossible to raise winged *Myzus persicae* on a similar host without the application of a wing developing substance." The writer has reared very large numbers of *persicae* on just such an host without the application of any such substance, and has repeatedly obtained 90 to 100 per cent. winged. But this was where winged forms would be expected in the line in large numbers.

The peculiar life histories of members of this superfamily have led to studies on the predetermination of sex. Morgan,⁸ for example, has shown that in *Phylloxera caryaecaulis* there are two types of males depending on the fate of one of the small sex chromosomes when the polar body is about to be produced. Each of these males thus produces a different type of spermatozoon, one female producing and one male producing. If the sexual egg is fertilized by the female producing spermatozoon the resulting stem mother will give rise to the line which results in the sexual female. If it is fertilized by the male producing spermatozoon the resulting stem mother will give rise to a line which results in the production of the male. It is thus seen why we have two types of stem mothers, one giving the large egg migrants and the other small egg migrants.

The production of plant galls by aphids has given rise to studies on these modifications of plant tissues and attempts to determine the factors at work. In some instances it has been claimed that the agent might be an enzyme present in the saliva for in such galls as those of *Eriosoma lanigera* the normal starch is replaced by sugar. The gall makers, too, have led to observations on the sensory organs of aphids. Those species which inhabit galls as well as many of the subterranean species have larger and more prominent sensoria on the antennae than have other species. These are in striking contrast to the sensoria on the antennae of the solitary and free-living forms. The gall formers and subterranean forms also have a larger number of Hicks organs or olfactory pores on the wings than do the solitary species.

Much interesting work has been done on the relation between aphids and their parasites, both animal and plant, and their predators. It is claimed by some workers that certain lower forms are associated with aphids in a commensalistic relationship and may be even passed from one generation to the next through the egg. Many of the parasites so reduce the numbers of aphids that a species otherwise very destructive need scarcely be considered.

Finally certain aphids are among the most injurious species of insects with which the farmer has to deal. The woolly apple aphid for example, had become so important even in 1832 that the Académie de Rouen offered a gold medal for the working out of its life history. The outbreaks of *Toxoptera graminum* in the grain growing areas of the world have done enormous damage and it is only necessary to watch the exchanges to see the influence this one insect sometimes has in the business world. In one outbreak according to Rondani the swarms of aphids appeared like dark clouds and later their dead bodies covered all the streets of the city.

It is thus seen that aphids have a very vital human interest. They supply materials worth much to the arts. They furnish certain quantities of food. And they have given the clues which have resulted in the working out of important biological problems. On the other hand they contribute some of our worst enemies of agriculture. But in our fight against these species we are aided by natural factors without which many of our important crops would be impossible.

⁸ Morgan, T. H.—Journ. Exp. Zool., XIX, No. 3, 1915.

THE PRESIDENT: I am glad Dr. Baker sent us this paper. It is one I am sure all of us will be glad to read over at our leisure. I should like to ask Dr. Matheson if the woolly aphis is of much importance in New York State. In Ontario it is certainly of minor importance.

DR. MATHESON: I hesitate to answer your question for New York State, for I have not done very much on the woolly aphis. I do not think it is a very important factor except in some nurseries on sandy areas.

PROF. PARROTT: Dr. Matheson has expressed the economic status of the insect so far as New York is concerned. Our attention to the work of the woolly aphis is usually called by its presence in young orchards of five, six or seven years of age which have not received any spraying. This refers to the aerial and not the root form. It is very seldom our attention is called to its work on the roots of nursery trees. From our correspondence it does not appear to attract a great deal of attention.

I think we owe a great deal to the entomologists of Canada for the work which has been done on the cherry aphis. I am referring particularly to the work of Mr. Ross on the ultimate hosts of the insect. This has been a great aid in our studies.

PROF. BRITAIN: The woolly aphis is of practically no importance in Nova Scotia...

THE PRESIDENT: I think we in Canada and New York State hardly appreciate the advantage we have over States farther south regarding woolly aphis. It is one of the worst pests of the States to the south. I know in Ontario of only one or two cases where the woolly aphis has been found in nurseries attacking the roots.

DR. HEWITT: The woolly aphis has proven to be quite a serious pest in British Columbia, where we get the root form as well as the aerial form. There was one point which Dr. Baker raised in his paper, which leads to an interesting biological phenomenon which it would be well for all of us to bear in mind when we are carrying on our studies, and that is the possibility of the formation of races of insects. During the last year we have found in British Columbia what is evidently a distinct race of the apple maggot on the Snowberry, which is used as an ornamental shrub. Wherever we found this shrub, whether in the south or farther north, we got this infestation by the apple maggot, though apples in the vicinity were not attacked.

SOME INSECT PROBLEMS IN THE PRAIRIE PROVINCES.

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Conditions in the Prairie Provinces are, as a rule, so totally different from those of Eastern Canada and the problems we have to contend with differ so much in general, that in reality they are often only alike in the broad outlines to which all insect problems must be approached. Take for instance, the general trend of these meetings; the papers and discussions lean decidedly towards the problems of fruit insects and insecticides, whereas in the West you would find fully 75 per cent. related to field crop insects and few indeed to those of fruits or sprays. To us these last are of quite secondary importance, and instead we have to deal far more with poisoned baits and methods of cultivation. Another point, and this

has often led to misunderstanding, is that of presuming because an insect occurs across the continent, that it is therefore identical in its life habits throughout its range. As a matter of fact very few are. This was brought prominently to my notice during some recent studies in white grubs (*Lachnosterna* spp). In the east and southward through Indiana, where Mr. J. J. Davis has made such a thorough study of these insects, the life cycle is usually three years, whereas in southern Manitoba it is four years. Now supposing we had studied only the eastern habits and applied them to the west, we should be a year out in our prognostication. It is of interest to note here that I found a similar variation in the life cycle of tiger beetles (*Cicindela*) as compared with habits worked out by Professor Shelford at Chicago. I am also of the opinion that we shall find the habits of some of our wireworms to differ in the same way. Another example may be found in the Hessian Fly, though in this case it is simply a matter of a reduction in the number of generations.

In the past there was a general tendency to supply the habits of old world insects to those of the new and occasionally we find an instance where this is still marring our progress. An example of this occurs in a well known pest of the Prairie Provinces, namely, the Western Wheat-stem Sawfly, *Cephus cinctus*. This insect was originally confused with the European *Cephus pygmaeus*, consequently as no further studies seemed necessary at that time, the old remedies were recommended, and are in some instances still, in spite of the fact that every effort has been made to show that they do not apply.

It might be asked, what are the outstanding differences that so alter the habits of identical insects. There are several, but the chief ones are those of climate; greater extremes of temperature, especially on the downward trend in winter, and less precipitation. I have already shown how lack of snow is responsible for the destruction of a large percentage of our Colorado potato beetles. We had another remarkable instance of this last winter, which in the vicinity of my home near Treesbank, Man. was responsible for a total extinction of the species. Thus it will be seen that our frosts are of some value after all. Incidentally I may mention that these same invigorating winters have proved an important factor in restricting another invader, namely the brown rat. The chief inclination of our climate, however, is to prolong the life cycle and this seems a general rule where native species are concerned.

The study of climate and meteorological changes in relation to animal life is a most interesting one and also important. Occasionally even a native insect gets caught by abnormal conditions of weather of which we had an instance last spring when a serious lepidopterous tree pest was reduced to quite insignificant proportions through the actions of a belated storm cutting off the food supply. I remember what promised to be another instance some years ago during a severe locust outbreak. The young hoppers had been hatched about two weeks when along came a severe snow storm accompanied by frost. Naturally the prophets predicted a total extermination of the plague, but like some well-known weather prophets their predictions were not verified, in other words, the locusts were in no way affected.

Since we do not grow apples to any appreciable extent, nor are much troubled by other fruit pests, we are able to concentrate largely upon cereal insects and those attacking root or vegetables. The field for this work is a very large one as can well be imagined when it is known that Saskatchewan alone had more than 22,000,000 acres under crop in 1918.

There are many different pests taking toll from these crops, six of which have been especially noteworthy in the past. They are: The Western Wheat-stem Sawfly, *Cephus cinctus*; Grass-stem Maggots (*Oscinidae*); Hessian fly; Wireworms; Locusts and Cutworms. Five of these are native species which before the advent of farming occupied their allotted space in the scheme of nature just as any other harmless creature might do. As usual, however, man upset the balance of things in his attempt to increase production and in doing so provided an unlimited supply of food for these insects. Thus we have the Western Wheat-stem Sawfly spreading from wild grains to cereals and what is almost as important, in most cases, leaving their natural enemies behind them. In their former state they were kept in check by two agencies, namely, lack of flowering stems in which they bred, or parasitic enemies. Under present conditions it would seem as if both these checks had been overcome and there remains, therefore, but one means of keeping them under control, namely, deep, well-turned, packed ploughing done either in the fall or before June of the following year.

The grass-stem maggots embrace many species and include such well known pests as the Greater Wheat-stem Maggot (*Meromyza americana*), Frit Fly (*Oscinis frit*) and many more. There is much variation in the life-history of these flies. Some are very injurious, others become so at times, while yet others actually do good. A few years ago less than a dozen species were known from Canada but within the last three years many more have been discovered including several that are new to science. The life of these flies is extremely variable. Some produce several generations in a season, others but one, while some again, pass the winter in the adult stage, others doing so as larvæ. They are by no means all grass feeders and some prefer decaying matter to living. Thus there is endless variation in their habits and much to be learned concerning them.

The Hessian fly is the only one of those mentioned that is not a native of our country and as is the case with many of our introduced animals it is subjected to inconveniences at times, through our variable climate. We have had seasons when fully 40 per cent. of the crop was injured by this insect, but its attacks, as a rule are few and far between, due chiefly to a lack of humidity at critical periods of the insect's life. In other words moisture is an essential factor in the insect's increase, while dryness reduces it to insignificance. Thus it is only during wet seasons that we have to be on our guard for possible outbreaks. Indeed, we have had but two severe infestations in thirty-five years.

Wireworms are with us always, but as is their habit elsewhere, they perpetuate most freely in grass lands. Several species are involved in our losses, the life habits of which are little known, but the average investigator is not anxious to undertake their study owing to the length of time it takes to rear them through all their stages. I personally have had an individual under observation for three years and it has hardly grown in that time.

One of the greatest scourges we have to contend against is that class of insects known as cutworms. They are always present. Sometimes in one part, at others in another. They come and go, but there are so many species involved that the farmer is often at his wits' end to know what to do. When the outbreaks are excessive large areas are swept off, much as army-worms would clear them. Thus hundreds of miles of territory may be involved. At other times the outbreaks are quite local but we are never wholly free from them and in gardens they are a permanency. There is much variation even in the life of these insects. Some deposit their eggs upon weeds, others in or on the soil. Some hatch from eggs the

same season, others do not do so until the following spring. They differ, too, in other ways but in appearance the general colour scheme is so similar that it is not surprising if the farmer fails to differentiate between one kind and another. Even the most experienced are puzzled at times owing to the sudden increase of a previously rare species. I had an example a few months ago when I received a consignment from Alberta. The species involved looked very like an insect to which my colleague Strickland had devoted such profitable attention a few years ago, namely, the army cutworm, but the larvæ seemed too large for the time of year, besides being considerably farther north than usual. However, the fact remains that they were very numerous and that they give every promise of causing injury next spring.

The last on my list is locusts. Probably all have read of the time in the seventies when an old enemy, the Rocky Mountain locust (*M. spretus*), came in millions and devoured all in sight. It was before my time but eye witnesses tell me that not a leaf remained and that the insects suddenly commenced to drop from a clear sky and were soon falling as a severe snowstorm does. The species is not, however, a native of our prairies; consequently, while it may breed for a season or two in millions, the time must come when the climate proves unsuitable and so they perish. Unfortunately we have several native species almost as destructive. One of them the Lesser Migratory Locust (*M. atlantis*) has on more than one occasion caused serious damage, while several others assisted materially in the depredations. A few dry seasons are generally sufficient to increase them to injurious numbers and even when the weather proves unsuitable close at hand they readily fly from elsewhere, consequently an outbreak a hundred miles or more away may easily lead to one close at hand.

I need hardly add in conclusion that there are many other pests requiring attention and we are never sure when others will appear. Army worms, aphids, tree pests and those of live stock all provide their periodic outbreaks and thus while our problems are seldom fruit ones, we have, nevertheless, much to keep us occupied.

THE RECOVERY IN CANADA OF THE BROWN TAIL MOTH PARASITE *COMPSILURA CONCINNATA* (DIPTERA, TACHINIDAE.)

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With considerable truth Oliver Wendell Holmes remarks that all boarding houses are the same boarding house. He means by this that there is a monotonous sameness about all of them, and that to know one of them is to know all of them. Until about a decade ago it was thought that tachinid flies resembled boarding houses in the monotonous sameness of their activities and that to know one of them was to know all of them. We were shaken out of this rather comfortable notion chiefly through the work of Pantel in France and Townsend in the United States who showed that these two-winged parasites exhibited among the different species a highly diversified and interesting set of methods for attacking their victims and gaining a livelihood.

One of the species studied by these authors was *Compsilura concinnata* the little fly that forms the subject of the present paper. As to its method of attack it was found that instead of depositing a large egg upon the skin of the victim—the method of the bourgeoisie among the tachinids—it placed a fully developed maggot

in the wall of its mid-intestine. This it was enabled to do by reason of a piercing ovipositor, beautifully adapted for the purpose. Moreover, this fly was found to be one of the chief factors in the natural control of the brown-tail and gipsy moths in Europe.

With characteristic energy the United States Government, through Messrs. Howard, Fiske, Townsend and Burgess, took steps to introduce this parasite into the New England States where the gipsy and brown-tail moths were creating such havoc. The story has been told of the collection in Europe of thousands of these parasites and of their liberation in Massachusetts, and of how after several years of anxious waiting the species was finally recovered and known to be breeding on American soil. It has also been related that with almost incredible swiftness the fly increased in numbers so as to take its place in the American fauna as one of the most potent factors in the control of the two insects it was expected to attack.



Fig. 2.—*Compsilura* adult. This excellent parasite of the Gipsy and Brown-tail Moths is now established in Canada. (After the U.S. Bureau of Entomology.)

When the brown-tail moth spread into Canada the country was confronted with a situation demanding immediate action, and the Dominion Entomologist arranged not only for a field campaign against the invader but also for the introduction from Massachusetts of its natural enemies.

The question of what to introduce into the Canadian brown-tail moth area had to be thought over very carefully, because it was realized from the first that our Canadian problem differed in important respects from the New England one. The fine beetle *Calosoma* was available and was colonized rather as a safeguard against a possible outbreak of the gipsy moth than in the hope of its being of immediate assistance in our brown-tail moth situation; for like most predacious animals it can increase only when the food supply is abundant. An *Apanteles* which was available had done fairly good work in Massachusetts and was also brought across the international boundary in the hope that it might live in our more rigorous climate and be of equal usefulness. The insect, however, that seemed to warrant almost any amount of effort to introduce was our little friend *Compsilura*.

We needed a parasite that could live upon native hosts as well as on our

brown-tail moths—preferably something with two or more generations a year so as to insure a rapid increase. We also needed something that would develop its greatest usefulness against the Brown-tail Moth while that host was still relatively scarce. All these attributes were possessed by *Compsilura* and the work of importation began with hopes running high for the success of the venture. What we did not know, of course, was whether this fly could live under boreal conditions, where the climate is so much more erratic and severe than in France and Massachusetts.

Seven years ago, in 1912, two colonies of *Compsilura* were liberated in New Brunswick strong enough and under good enough conditions to warrant recovery speculations. The next year, however, no *Compsilura* could be recovered from the colony sites and the work of importation had to be continued. At first there was no occasion to worry about the non-recovery of *Compsilura*, for it had taken three years to prove establishment in the United States. However, being human we worried a little and increased our efforts to secure more material for liberation. After four years of colonization, without apparent results, we redoubled our efforts

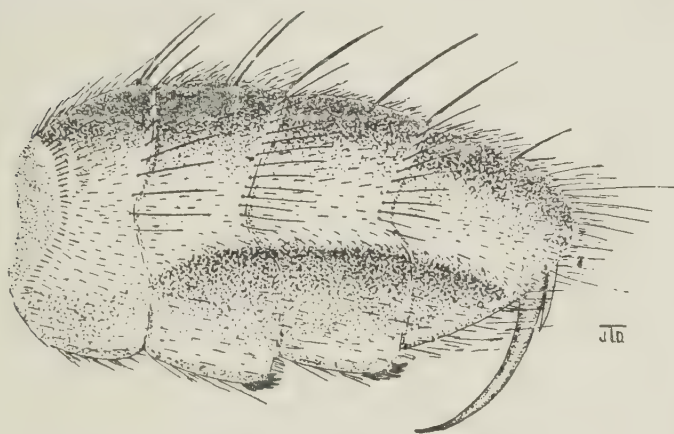


Fig. 3.—Abdomen of female *Compsilura* showing piercing device. The ventral part of segments 2, 3 and 4 is flattened into a keel shaped structure. Note the clusters of spines on segments 2 and 3 that have been developed for holding the caterpillar when using the piercer. (Original.)



Fig. 4.—Piercing device of female *Compsilura*. With this hollow, sickle-shaped instrument (1 m.m. in length), the female fly punctures the skin of a caterpillar. With her somewhat inconspicuous larvipositor she then places a maggot in the wound after which she flies to another victim. (Original.)

to secure a large number of flies. Host caterpillars were collected in great quantities in Massachusetts and a very large number of the flies were bred out for liberation, as the chart shows, in Nova Scotia, New Brunswick, Quebec and Ontario.

At the close of that year, 1916, it was felt that every opportunity had been given *Compsilura* to become a part of the Canadian fauna—in a period of five years about thirty thousand flies had been liberated—and the work of importation was consequently stopped.

In 1917 a considerable amount of energy was expended in the attempt to recover this elusive fly, but once again the results were discouraging. This year (1918) the recovery work was continued and the insectary at Fredericton filled with thousands of tussock, datana, and red humped larvæ, collected from likely places in Nova Scotia and New Brunswick. One day Mr. Keenan, who had charge of the tray work, brought in several dozen tachinid puparia bred from tussock larvæ collected at Fredericton. Among these were five little puparia that had the ear marks of *Compsilura*. With the same sort of tender solicitude that worker ants bestow upon larvæ just stolen from a nearby colony, we watched over these five puparia. After a week or two of anxious waiting five flies emerged; three were males and two females and all were *Compsilura concinnata*.

As the last liberations had been made in 1916 it followed that this parasite had successfully hibernated through at least two New Brunswick winters, and that it could now be considered a thoroughly established member of our fauna.

It has taken seven years to bring about the establishment of this parasite. The comparatively low cost of introducing this and other parasites of the brown-tail moth has been largely due to the splendid co-operation offered at all times by the United States Bureau of Entomology, particularly through Dr. Howard and Mr. Burgess who afforded the Entomological Branch every facility for carrying on the work of collecting material in Massachusetts and other parts of New England.

By way of conclusion it may be pointed out that *Compsilura* is now a national asset of considerable importance. As a parasite of the brown-tail moth it has already proven its worth in Massachusetts—especially in areas where the moth is not very abundant. It is also a splendid parasite of the gipsy moth both in Massachusetts and in Europe, and the cost of introduction would be much more than justified if only as a measure of security against a possible invasion by that despoiler of deciduous trees. In Massachusetts it has also proved to be one of the most, if not the most, effective enemy of the white-marked tussock—an insect now so conspicuous in many Canadian cities. That it is continuing this good work is shown by the fact that our five recovered specimens were all bred from white-marked tussock at Fredericton.

DISTRIBUTION OF THE PARASITE *COMPSILURA CONCINNATA* IN CANADA

NUMBER OF INDIVIDUALS LIBERATED

—	1912	1913	1914	1915	1916
Fredericton, N.B.....	1238	.....	1500	1500	.....
Harvey, N.B.....	2000	.....	.....
Keswick, N.B.....	1800	.....
Lower Woodstock, N.B.....	1200
Nerepis, N.B.....	1500	.....	.....	.....
Oromocto, N.B.....	1200
Pokiok, N.B.....	1200
Rosborough, N.B.....	1200
St. Stephen, N.B.....	1119	1500	.....	.....	.....
Temple, N.B.....	1200
Upper Gagetown, N.B.....	1200
Woodstock, N.B.....	1500	.....	.....
Annapolis Royal, N.S.....	1500	.....
Bear River, N.S.....	1500	.....	.....	.....
Ayer's Cliff, P.Q.....	1200
Coaticook, P.Q.....	1200
Stanstead, P.Q.....	1200
Way's Mills, P.Q.....	1200
Vineland, Ont.....	1200

SUMMARY.

Compsilura concinnata is one of the most important enemies in Europe and Massachusetts of the brown-tail and gipsy moths.

Between 1912 and 1916, inclusive, about 30,000 of these flies were collected in Massachusetts and liberated in the Canadian Brown-tail Moth area.

The parasite was first recovered in Canada in 1918—seven years after the first colony liberated—and can now be considered as established in New Brunswick.

Compsilura is now a national asset of considerable importance. It is a most efficient parasite of the brown-tail moth; affords protection against a possible invasion of the gipsy moth; and is already attacking in Canada the white-marked tussock.

EVENING SESSION.

On Wednesday evening, at 7.30 o'clock, a public meeting was held in Massey Hall, Ontario Agricultural College. Dr. G. C. Creelman, the President of the College, welcomed the members, delegates and visitors to the institution. Mr. F. J. A. Morris then gave an entertaining account of the "Life-history of a Hobby-horse," which was followed by the special address of the evening, on "Some Present-day Problems in Entomology," by Mr. J. J. Davis of West Lafayette, Ind.

At the close of this meeting a smoker was held at Dr. Creelman's residence.

THE LIFE HISTORY OF A HOBBY HORSE.

FRANCIS J. A. MORRIS, PETERBOROUGH, ONT.

Part I (aet. 3-13).

Before I was three years old, so my elders and betters have informed me, I made my escape one day from the nursery and was caught in the garden crawling through a thicket of laurels. On being haled back to captivity by the nurse, I disclosed to her horrified gaze, clutched in one grubby paw, a happy family of "wee beasties" as I called them—an earwig, a "woolly-bear," a centipede and two "slaters" or sow-bugs, which I had collected on this my first entomological trip.

Some two years later, while staying at the seaside near Ailsa Craig, I called one day to an older sister who was hurrying down by me, to know if I might play with a pretty fly I had discovered on the staircase window; she was too busy with some private quest to do more than throw me a careless "yes, certainly," and pass on without turning to examine my playmate. The pretty fly, which was large and banded with yellow and black, so resented my stroking it that it backed down suddenly on the end of my finger, and I was removed howling to the kitchen to have my first wasp sting treated with washing blue.

It was from here or from Stonehaven, south of Aberdeen, where we stayed the following summer, that I brought home a whole chestful of shells gathered on the beach and a scrap book of variously tinted seaweeds. These two visits to the coast made a lasting impression on me, and for many months must have coloured my inland life with the bright hues of romance; for, one day, I rushed into the house from bowling my hoop along the highway, my eyes bulging with excitement, to announce that I had just seen a crab hopping along the Gilmerton Road. As we lived in the heart of Strathearn, 30 miles west of Perth, I presume the crab was a toad.

Children notice very small things, but their looks, I believe, are far from critical. At any rate I had never thought of counting the legs of crabs and frogs, either out of curiosity or from a sense of precaution; though, I well remember how I tried with a brother of mine to count the legs of a centipede after being told what its name meant. But, beyond all question, at the stage when we are ourselves still quadrupeds and creeping face downwards, like reptiles, over the surface of the earth, nothing is too small to be noticed.

It was in these days—i.e., before I had grown up into a biped more or less star-gazing—that I made the acquaintance of certain minute spiders known to those in sexless garments as “soldiers,” and the name seemed very appropriate, for they were bright scarlet and bore on their back the distinct impression of a knapsack. “Clocks” and “jumping-jacks” were also among the marvels of what to every child is a new world full of all kinds of wonderful sights and sounds; “jumping-jacks” were a small elater or click-beetle, and “clocks” were weevils with a stupendous power of grasping and clinging in their six pairs of toes. Another mystery we soon got to the heart of was the little blobs of spittle that appeared on the stems of meadow-grass where we played; and at the core of these queer little froth-cocoons we found the tiny atomy that makes them, still spitting for all its life was worth. Quite a formidable monster in this nursery land, I remember, was the “devil’s coach-horse,” a large black staphylinid or cock-tail beetle, that when cornered would turn at bay threateningly, raising its head and front up from the ground and arching its tail over its back; even snails—as the nursery rhyme reminds the more forgetful of us, with their sudden out-thrustings of long horns; were a fearsome beast not to be approached without due caution.

All this time flowers and ferns and mosses were an equal fascination, and I don’t think there was a day when I didn’t bring home a handful of these treasures to be told their names; daisies and gowans, buttercups and dandelions, the tiny blue veronica of the hedgerow that we knew and loved as “bird’s eyes,” the little wild pansy or heart’s ease, baby brother to the “Johnny-jump-ups” of our cottage gardens; then, as we went further afield, poppies and cornflowers, dogroses and sweetbrier, the primrose and the periwinkle, ragged-robin and cuckoo flower, wild thyme, eyebright, fox-gloves, bluebells and forget-me-nots. The very names make music in the memory; and it was just the names that we wanted to know. I don’t think once heard they were ever forgotten. These names and images cling all through life and gather about them whole clusters of fond associations of time and space. In childhood, perhaps, they are little more than sense impressions, but as the spirit ripens into maturer years, they become informed with emotion, filling our imagination with fragrance and colour: such memories are good wholesome food for manhood’s prime and the sweet solace of old age.

About this time my father’s hobby of gardening seized hold of me; more, I suspect, for the gardener’s sake than the garden’s. One’s father in those days was the strongest possible proof that giants if not gods still walked the earth in the semblance of men; and to help him water the garden was to be in paradise. I am afraid my help was little more than a hindrance, but I still see myself staggering along behind him with a watering pot; he was so absorbed in his work that the self-constituted under-gardener was often forgotten. I have sometimes since suspected this particular Olympian of being absent-minded.

He was a great smoker and nearly always had his pipe going: for use out of doors he carried a box of “fusees,” a wonderful long-headed wooden match that

sputtered out a jet of fire capable of lighting pipes in wind or rain; the head was secured to the stick by wire-braid and retained its heat long after being thrown away, as I discovered on a certain memorable occasion when I tried to pick one up. It is told of my eldest sister that once as she toddled after my father in his majestic course down the garden path, one of these newly spent fusees thrown carelessly over his shoulder lodged on her neck and sizzled her into an agony of shrill screams that must have rudely dispelled the smoker's reverie.

My father was very fond of flowers, fonder still of shrubs—lilac, syringa, ribes, laburnum, laurel, cypress, golden yews and silver firs, but fondest of all of rhododendrons: "Roddy dandrums," so the mid Perthshire proverb flew, "Roddy dandrums are the minister's maggot"—All procurable varieties from white to wine-dark crimson flourished in the parsonage garden.

It stands out in my memory as clear as yesterday—so proud a day it must have been—how my father took me along with him one evening for a walk past some nursery gardens. Here he spotted a rhododendron a shade darker than any he had; finding the nurseryman out, he scribbled a note for him and returned with wheelbarrow and spade to the scene of the prize. The shrub was carefully dug up, mounted on the vehicle, and carted exultantly away, the very barrow calling aloud like a guinea fowl at every turn of the wheel; what a triumphal procession that was! I was still too small to help trundle the trophy home, but like the fly on the wheel I thought myself the hero of the day.

To grow these shrubs successfully, my father had cartloads of peat drawn from the neighboring loch of Ochtertýre, and every shrub was lowered into a great pit and filled in with well-pressed peat. One day, I remember, my father came in to lunch from the garden, and behold! the large silver watch was gone from his fob. Most of the afternoon was spent in undoing his morning's work, and it was only after three or four rhododendrons had been dug up and their peat-beds carefully sifted over that the watch was recovered. It still keeps good time, and has been an inmate of my waistcoat pocket for more than thirty years now.

Hitherto, I had been a rather solitary little mortal, but there now came into my life a close companion and bosom friend. This was a brother nearly two years older than I who came home at last from a prolonged visit to the south coast of England, as the rigors of our Scotch climate had been too much for him and he had been sent to the seaside in Sussex. He had stayed there so long that at first coming among us he seemed lost in an alien world and nothing could be found to comfort him. My panacea, to gather "wooden enemies" in the Beech Wood, did seem for the moment to brighten him up, but when he found the "wooden enemies" were only wind-flowers, and a walk to the Beech Wood led up hill through trees to a stone quarry instead of down over sand to the sea, his wrath and disappointment were greater than ever. After some weeks, however, he grew reconciled, and as he made friends very readily, he and I were soon as thick as thieves and always together. Our friendship was all the stronger that we were of somewhat different natures; like twin stars we helped to round each other's lives out to a fuller sphere of wider orbit. An aunt of my father's who stayed with us then, gave us nicknames that stuck for many a long day; she called me "Merry Andrew," and my brother "Slyboots." We were both of a height and could wear each other's clothes quite comfortably. As we were always dressed alike, there were very few outside the family circle who could tell us apart, and the less intimate half of our world supposed we were twins.

Certainly, not even the Siamese twins were more inseparable; we even slept together, in a little attic at the end of a long passage off the kitchen staircase.

Our partnership had not long been formed before we were sent to attend an institution in the town called "Morrison's Academy." Here we took an active part in the school games and made many friends and acquaintances. These were always boys who loved country life, and though none of them ever drew so close to David and Jonathan as to come between us, it often meant that three or even four of us would start out together for a holiday tramp.

Whenever I ponder over this community life of a boys' school, I am filled with wonder at the vast mass of tradition preserved in such a place. It offers a good illustration of the close analogy between children and savages; an immense lore is handed down unconsciously by bigger boys to the small fry from one generation to another. A great deal of this knowledge is forgotten by the individuals as they grow up, but it still survives in the schoolboy community. If as old men we could go back like Mr. Bultitude in "Vice Versa" to our school days we should be reminded of a thousand facts and fancies, primitive beliefs and superstitions, that the young barbarians of to-day have inherited by unbroken tradition from us boys of fifty years ago.

Local names (and even book names) for flowers and insects of wayside and wood, for beasts of the field and fowls of the air; original remarks, shrewd observations and quaint reasonings about their appearance, their habits, their haunts; all these form a common stock of ideas, food for conversation and thought as well as a basis for action, among hundreds of school boys more or less guiltless of the three R's of Reading, Riting and 'Rithmetic.

"Slyboots" and I fell heirs at an early age to a collection of birds' eggs made by our elder brothers when they were at school at Glen Almond. This was quite an extensive collection, ranging in size from a swan's to a golden crested wren's (gold-crowned kinglet's); it represented not only most of our inland birds of Perthshire from game birds and birds of prey to the sparrows and warblers, but sea birds like guillemots, razorbills, herring-gulls, curlews, sea-mews and terns.

Largely through our big brothers' kind offices we soon learned to associate every egg with the name of the bird that laid it; then we made it our daily business to recognize every bird we saw in the countryside by its plumage, flight, song, habits and haunts; we even ferreted out, in the home of a companion, a large work in several volumes on Birds, British and Foreign; we used to pore over its pages, especially the colored illustrations, till we knew the appearance of many birds, even hawks, ducks, and seagulls, far beyond the ken of our county. (120 birds' names.)

We were very tender-hearted for boys, and largely eschewed the society of the rough and tumble urchins who robbed birds' nests. A golden rule impressed on us almost from infancy was never to take more than one or two eggs at most from a nest, and always to leave at least half the clutch, or the birds would desert; indeed, we rarely took eggs at all, if we had any others of the same kind already. My recollection of the neighborhood is that, among the grown-ups at least, bird life was greatly respected. I well remember once with what a thrill of dread it struck me while bending over a "mossie cheeper's" nest by the roadside, to hear a cottager call out as she passed "Eh, laddie, ye'll never thrive, harrying the birds' nests!"

It was certainly a good thing that we had only one collection between us and seldom went in company on these excursions. For with the crowd there

was a regular code of law—an immemorial custom; as soon as a nest was spied, “Bags I first!” came the cry, “second!” “third!” and so on; here, bird’s nesting was a ruthless pursuit, hardly an egg could escape, and the boys’ sharp eyes went everywhere. My brother and I jogged along a much more innocent way, drinking in beauty and pleasure at every turn, and fostering a love of nature that has never left us. That we really were more innocent must have been obvious to the gang of nest-harriers and bird-killers, the bigger boys of the town, who despised us as simpletons and gulled us shamelessly in our chafferings and barterings at school. As, for instance, on the flagrant occasion when I was persuaded that a lesser redpoll’s egg of mine was only an undersized chaffinch’s and agreed to dicker it for a cock’s egg, which I was told was of very rare occurrence, as indeed it is.

Among the birds familiar even in childhood were three especially that filled us by their cry with a strange sense of mystery; one was the cuckoo whose influence on his boyhood Wordsworth has immortalized; another was the corn crake or landrail that called from the depths of the meadow grass below our attic window on warm June nights; and the third was the lapwing or crested plover. This last was known to our fraternity as the “peewit” or “peesweep.” Like other shore birds, waders and runners (the sandpiper, for instance) this plover has a wonderful instinct for luring enemies away from its brood; when surprised near its nest, it will hobble and flutter and run just ahead of you, trailing a wing on the ground and holding out various signals of distress till it has coaxed you far from the danger zone; then up it soars with loud cries of triumph or derision; in the air it wheels round and round with calls of alarm; naturally, you hunt beneath this magic circle expecting to find the nest; but its circle is really an eccentric one, a sort of horizontal spiral whose centre is continually shifting; and it is safe to say that the nest is never under these movements of the bird, which are simply an ingenious form of camouflage or decoy. Like many of the birds that build little or no nest and breed gregariously, the plover often fails to hatch its young, and addled eggs are not infrequently met with.

I remember one day when my brother and I had found some of these plovers’ eggs by going to and fro through a piece of bare pasture, we happened in with a gang of four or five bigger boys. They too had been hunting for peewits’ eggs and had met with considerable success. They hailed us, and we drew together for a spell beside a cattle trough filled with water. One of the older boys asked us if we knew the way to tell fresh eggs from bad ones; on our replying in the negative, he showed us how, as he said, the fresh floated while the bad ones all sank; this was a wonderful discovery to us, and when he added to his kindness by exchanging our eggs that sank for some of his that floated we were overjoyed. As we turned to go, a wave of emotion seemed to overcome him—I suppose he was fairly nauseated with our innocence—he seized one of the freshest of the eggs (for it was floating high on the surface of the trough) and threw it full in my face. I was wearing, I remember, a new cricket cap of bright blue flannel; the shell of the bomb exploded on the peak of my cap and I was deluged with the contents of this miniature Chinese stink-pot and very badly gassed.

One memorable summer when I was eight or nine years old, we went to stay in Kent with some relatives in a large country house with extensive gardens and grounds. All kinds of wonders met us here, in the woods, hyacinths and wonderful

birds; magpies, jays, green woodpeckers, wrynecks, bottle-tits, goat-suckers; indoors and out, tame things galore; rabbits and hares, rats, mice (white mice, field mice, dormice), doves, canaries, love-birds, toucans, and—most fascinating of all—silkworms.

Our cousins had trays and trays of these grey caterpillars fed with fresh leaves every day from the mulberry tree on the lawn. To watch these creatures feed and grow and moult, to see each one taken when it stopped feeding and put into a paper twirl or “poke”—a miniature cornucopia, to watch them spin their cocoon, and then to assist at the business of tearing away the rough outer scaffolding of yellow strands and fluff, pick out an end from the close-wound cocoon, set the cocoon in a glass of water and reel onto a skein-winder the whole interminable thread of golden silk, the cocoon bobbing about on the surface of the water in the glass, till finally the newly formed pupa sank through the last meshes of its-hammock, and was put carefully away in dry bran for the moth to emerge; to see the moth lay its eggs, one after another, side by side, in batches on a sheet of paper spread over the bottom of the box, eggs that soon darkened from creamy color to leaden gray; all this was enchantment and we were soon bound fast under the spell. A whole room was devoted to the work, and its curtains and walls were hung with these inverted paper cones of spinning and pupating caterpillars.

The rage for silkworms travelled back to Perthshire that September on the Scotch express, to spread like influenza; not only did we send next spring to a London dealer in Natural History supplies, for some batches of eggs, but bit some of our particular friends with the mania, so that a silkworm cult was established in the Town of Crieff.

I am afraid the industry never thrived; for one thing the mulberry does not grow in Scotland, and although lettuces make a fair substitute, the caterpillars are smaller and less hardy, so that quite a high mortality ensues between egg and adult. But we made, I remember, some interesting discoveries. In the first place, we devised quite an original form of incubator to coax the grub out of the egg a few weeks earlier than the natural season. We began by keeping the eggs on the kitchen mantelpiece just over a good fire that was always going; but presently, too impatient to wait, we tried putting some of the egg hatches into the warm—almost—hot oven; the success of this experiment was almost too great, for the specks of grubs hurried out to feed before the lettuce got up from its bed in the garden to be fed on. It was at this time that we made our second discovery of dandelion leaves as a substitute for lettuce. The supreme result of keeping silkworms, however, was that it decided my brother and me to begin a collection of insects.

Several seasons earlier I had tried rearing some of my favorite woolly-bears, which I found feeding on dockleaves. This had been so far successful that I understood the connection of caterpillars with moths and butterflies, and the mystery of the chrysalis. And after my woolly-bears had been transformed to gorgeous tiger moths, I had gathered from the garden all the caterpillars I could find on cabbages, currant bushes and so on. But I must have been too young to collect systematically, for I don't think it ever occurred to me to keep the imago after its emergence. Two incidents of this earlier experience come back to me; one, how I watched a green caterpillar of the smaller white butterfly, when full grown, spin its little button and sling of silk and contract as though about to pupate. A day or two after when I looked for the chrysalis I found

to my amazement that a cluster of tiny yellow-silk cocoons had rent my larva in twain just about amidships. I took the box to my father and asked him, did caterpillars ever have young ones? The phenomenon was as big a puzzle to him, I remember, as to me, but he advised me to keep the brood under their glass lid and see what would happen. I don't think either of us was much wiser for seeing some small winged flies in the box a little later; I know I wasn't. The other incident was even more disappointing. In a lane near the town I found one day a strange chrysalis lying on the ground. It was certainly somewhat hard, but I suspected no guile, and, taking it home carefully, kept it for months in a box of bran; when at last I realized it wasn't going to hatch out, into some gorgeous new butterfly, "like the other chrysalises," I shed tears of disappointment. My chrysalis, in fact, was nothing more or less than a common date stone.

However, all this had been years before when I was quite little. Now I was nearly ten and had a partner almost two years older. Our collection grew apace in its first two seasons, and many notable accessions were made to it; among these, I remember, a large box of tropical butterflies bought at a bazaar; the pupa of a Death's Head Sphinx dug up in the potato garden; a magnificent green caterpillar with purple diagonal stripes on its sides and a horn on its tail found on a weeping willow at the end of the lawn; several rich velvety brown caterpillars of an Emperor moth taken feeding on heather up in the hills; and, superbest of all, our first Peacock butterfly.

This regal beauty is not found in Perthshire, but one of our next door neighbors, a boy five years my senior, had a fine collection of Lepidoptera and offered one of these gorgeous things as a prize to whichever of us could beat the other in a fight. Now David and Jonathan often fought in the heat of some momentary difference, but to be asked to stand up to one another in cold blood seemed a little too much; still, peradventure, for the sake of a Peacock butterfly! At last we managed to strike a bargain with the stony-hearted judge; whichever threw the other in a wrestling bout should have the butterfly, and we flew together before our chieftain in a close Scotch hug not unworthy of Donald Dinnie at the annual gathering of the Highland games in Strathearn. Whether "Slyboots" had figured it all out beforehand or not I shall never know, but I found it far easier to throw him in the wrestling bout than to pick up his friendship after the fall. The butterfly was mine, when we turned moodily away to go home; it was his ten minutes later when we entered the parsonage gate, deep in friendly converse and of joyful countenance.

If you think for one moment our little lives by now were full to bursting with all this hotch-potch of country fare in the few short months of a Highland summer, you've sadly forgotten the days of your youth. Children are much like dogs, they have a voracious appetite and they cover far more ground in the course of a day's journey than your sober-paced man; they haven't his steadiness of purpose and they hate to stay on the high road; but they're all eyes and ears and full of tireless energy, forever ranging over the surface of things, if never digging deep.

Between you and me and the gatepost, then, I haven't as yet so much as hinted at our really and truly favorite sport of the summer, a sport that at one time grew to a devouring passion and threatened to swallow up all its rivals. This Aaron's rod of our childhood was the rod that according to Dr. Johnson has a worm at one end and a fool at the other, but so long as the worm caught fish we didn't care a button what names you called the fisherman. As long,

almost as I can remember, a fishing trip was the greatest holiday treat we could think of. In my case, I am sure, there was never any danger of other interests getting crowded out; for I was never so absorbed in the gentle art that I didn't keep an eye open, to say nothing of my ears, for the rest of nature; everything living was fish to my net, and the contents of my wicker creel went far beyond the finny tribes. "Slyboots" caught more trout, but "Merry Andrew's" basket showed quite as big a catch; among other "queer fish," I brought home, I remember, a young rabbit, a sandpiper, two half grown wood pigeons ("cushie doos"), a bat, a swallow, an owl, a squirrel, a hedge-hog, and once, incredible as it may seem, a pair of full grown weasels. I had spied them playing together near the Forth, but when I hurried up with a collie dog that had made friends with me on the way, they took refuge in a drain-pipe; here I prodded them so with the butt of my rod that they rushed out to be mauled by the dog; whether I could ever have tamed them into pets, remains a moot point, for both died next day, and by the advice of a friend—an old naturalist—were laid out in the shrubbery as a bait for carrion beetles. As for the bat and the swallow, they had both flown at my fly-cast as it went sailing over my head and had actually been hooked in mid air. Many a strange adventure and many a rare sight met us on those fishing trips; once we actually had the luck to see a large otter with a sea-trout in its mouth. The older we got, the further we went; and the further we went, the longer grew our list of the wonders of creation.

Our earliest fishing trips took us to Ochtertyre after perch; the way to this loch led over fields past the corner of a small lake known as the Serpentine; here we caught our first dragon-flies and the little copper butterfly, gathered bullrushes and water-lilies, found our first nests of coots and waterhens, and were given once a swan's egg by one of the game-keepers. Later on, we found from a summer spent (with whooping cough) at the village of Gargunnock near Stirling, that we could catch brook trout; after that still-fishing for perch with a coloured float lost all its charm; even trolling for pike, and the novelty of hauling flounders and bream out of the tidal waters of the Forth paled before the fierce joy of climbing the trout stream, with its linns and grey mare's tails overhung with rowans and birch—the haunt of water-kelpies—up through the wooded glens to the wind-swept heathery moor where the lonely whaup goes crying among the mountain crags. Here with the spirit of solitude dwelt Mystery and Romance, and with beckoning fingers—all unknown but none the less imperiously—drew our boyish lives up to heights far above the welter of mundane things. And well for us both, that this Education of Nature had sped apace; for I was only just thirteen when a bolt from the blue brought the whole palace of delights tumbling about our ears with the sudden death of my father. By the time we had crawled painfully out of the ruins to build up the wreck of our happiness, we found ourselves living in a London suburb.

PRESENT DAY PROBLEMS IN ENTOMOLOGY.

J. J. DAVIS, WEST LAFAYETTE, ILL.

Cereals have always been our most necessary economic crop but the existing war conditions have greatly emphasized their importance and as you are all aware, insect pests are one of the chief causes of crop losses. Within the past year the United States Department of Agriculture has been able to increase crop acreages, especially that of wheat, by efficient publicity methods made possible through the co-operation of the State agricultural authorities and the County agricultural agents. This programme resulting in increased cereal acreages has brought about numerous changes in agricultural practices, such as rotations, an overbalancing due to the increased production of certain crops, and the introduction into certain localities of crops heretofore seldom if ever grown. These changes suggest new entomological possibilities which will become realities and more evident in later years.

At this time I wish to discuss briefly some of these conditions and to follow with a treatment of certain important cereal and forage crop insect enemies which are problems of the moment in the States of Iowa, Wisconsin, Illinois, Michigan, Indiana and Ohio, and which closely approximate conditions occurring in many parts of Canada, more especially in Southern Ontario.

As has been stated the effort for increased production of wheat, has resulted in the disregarding of certain rotations and an increase in the wheat acreage amounting, in Indiana, to 35 per cent. above normal or 50 per cent. above the 1916 crop, which may be considered a typical increase for the area under discussion. Without certain precautions this condition is almost sure to present advantages for the wheat insects, giving them unlimited breeding grounds under most favorable conditions. In some localities where the growing of spring wheat was discontinued a score of years ago on account of the continued ravages of insect enemies, the growing of spring wheat has again become common. It is not unlikely that if we must continue the growing of spring wheat in these areas we will again be confronted with the insect problems which brought about the change in cropping some 20 years ago. In fact, the Hessian fly has already made its appearance in threatening abundance in one locality where wheat was a crop of no consequence until the last year or so.

The problem of the cereal insect investigator differs greatly from problems confronting the entomologist dealing with orchard or garden pests, for the culture of cereals is less intensive and the expense of such practices as spraying is almost out of the question. We must rely almost entirely on general cultural methods although there are exceptions, notably the control of cutworms and grasshoppers by the use of poison baits. The present high prices for foodstuffs increase the possibility of using more intensive methods for controlling pests of general farm crops although here again we are limited because of the shortage of man power.

How we can most effectively assist the farmer to combat the many insect pests is itself a problem of huge proportions. In years past we have issued bulletins which were sent to persons interested or who requested specific information. Experience has taught us that the promiscuous mailing of such bulletins is a waste. At the present time a majority of the counties in the States have what is known as a county agricultural agent, a man who has made a success of farming or who has completed a course in an agricultural college or preferably

a man with both qualifications. Such a man cannot be familiar with all phases of farming and he is least likely to have a knowledge of the insect problems. It is evident that we must continue our detailed work and must publish our results, but it is equally evident since the conspicuous advent of the county agent that we should write publications which will appeal and be a help to him. The county agent is a busy man, having calls which keep him almost continuously in the field with little or no time for reading and he must therefore have ready references where he can secure the necessary information without having to read laboriously through pages of unnecessary matter. We have reference books which are well suited for this purpose, but these are usually out of date a few years after they have been published, and have in many instances resulted in recommendations for insect control which had been superseded by more efficient measures, discovered since the publication of the book. I have in mind a type of publication which should be more nearly what is needed to meet the county agent's requirements. Such a publication would discuss a certain class of insects, for instance, the more common corn insects, as a group rather than individual insects, and with it would be synoptic tables enabling the county agent to determine the trouble either from the type of injury or from the insect itself. These would be accompanied by typical illustrations of the insect and injuries. A table showing the seasonal appearance of the different insects would enable one to be on the lookout for certain pests. In such a bulletin the reading matter should be brief and concise and consist principally of methods of control and references to available publications where more detailed information could be obtained. To supplement such a bulletin the county agent should be provided with well illustrated leaflets treating of individual insects which could be handed to the farmer and these should contain just the points required by the farmer and nothing more. Since the advent of the county agent there has been a still further specialization in the form of extension entomologists, horticulturists, animal husbandmen, etc. Their duty is to keep closely in touch with the farmers through the county agents, to demonstrate their respective problems and in other ways to show the farmer by personal contact the better methods of farming. One might surmise that the advent of the State extension entomologist would preclude the need of publications for farmers. While this may to a certain extent limit the need of bulletins, on the other hand it may and does enlarge the value of the published data. For example, as recently given in a letter following a visit to help the farmers in a grasshopper stricken district, and as has been repeatedly stated to us, the farmers are pleased to know that such assistance is theirs for the asking and they become more receptive to bulletins and are more likely to make use of our published data.

I have briefly discussed how we may assist the farmer but we have another problem—how may we assist those who follow our recommendations but whose neighbors continue to disregard the proper methods of control and thus threaten the crops of those about them. Heretofore we have issued the necessary information by means of bulletins, institutes and demonstrations, hoping that farmers would adopt the practices. There are any number of instances, however, where the disregarding of recognized control measures by one has been the means of infesting a neighbor's crops. Two methods seem adaptable. One would consist in furnishing the farmer, from State or County funds, the necessary materials for combating insect outbreaks. Thus in Kansas, Prof. George A. Dean has found it practical for counties to furnish to farmers, poison bait for use in fighting grasshoppers. It seems that this is a step in the right direction for the farmer

seeing an impending outbreak, even though skeptical of the value of recommended control measures, will usually follow a practice if the materials are furnished free, or he may feel that since he will pay his share anyway in the form of taxes, he may as well get that which is coming to him. This method of procedure seems adaptable for fighting such insects as grasshoppers where the principal problem is procuring the materials but it does not answer the question of the wheat grower who wishes to protect his crop from Hessian fly by certain cultural practices. This brings us to the second method, namely, control by legal process. For years certain of the States have had laws requiring the spraying of orchards infested with San José Scale and other insects and nearly every State has a nursery inspection law requiring inspection of all nursery stock by competent inspectors, to prevent the spread of noxious insects. More recently, Dr. S. A. Forbes has advocated laws requiring a general use of all reasonable and practicable measures for the control of insect pests likely to spread from infested fields to the injury of the property of others, for, as Dr. Forbes has said, "Why should the farmer allow the chinch-bugs he has raised in his wheat to escape into his neighbor's corn any more than he should allow his cattle to break out of their pastures to feed on that neighbor's crops?"* Such a law is now in force in Illinois. The requirement of certain practices to safeguard the community by legal process is not uncommon in certain countries where it has proved an advantage and there seems to be no reason why the same requirements might not be an advantage in our own countries.

The conditions resulting from the war are giving the entomologist a greater opportunity to prove and illustrate the value of his work and are showing to him his shortcomings. With these changing conditions and especially with the coming of the county agent or district agricultural expert the duties of the economic entomologist are changing or, probably better, being advanced. The entomologist of the future must continue to investigate the problems dealing with the life histories of insects and to give practical demonstrations of the control measures and especially to standardize entomological practices. He must in addition delve deeper into the mysteries of insect life in its relation to physical and biological factors, especially meteorological influences and the changing field conditions due to varying crop rotations, more intensive farm practices, and the like. These will lead to another important phase of the future entomologist's activities, namely, the forecasting of insect outbreaks; in fact, we are already able and are making general forecasts of possible insect troubles, especially such insects as the Hessian fly, chinch bug, grasshopper, plant lice, and white grub. Our efforts thus far are quite primitive and not altogether certain but the speaker believes it will be a matter of but comparatively few years until the forecasting of the scarcity or abundance of this or that insect will be a routine, and an important routine, of the entomologist's office.

In a recent article† I had occasion to discuss the relation of entomology to allied agricultural subjects and attempted to point out the importance of co-ordinating our work with that of the agronomist, the horticulturist and others and the work of the entomologist of the near future, as I see it, makes this action not only desirable but imperative. To a like degree is it important for the student specializing in economic entomology to study entomology not as a subject by itself

*The insect, the farmer, the teacher, the citizen and the state. Illinois State Laboratory of Natural History, 1915, p. 12.

†Jour. Econ. Ent. Vol. 11, No. 5, Oct. 1918, p. 406.

as is now so commonly the rule, but in relation to other agricultural subjects; in other words he should use ecology in its broadest and practical sense, which is nothing more than relations between insects and the innumerable conditions affecting themselves and their hosts, and the economic application of these interrelations. The student, whether he is specializing in entomology or along general agricultural lines, should also be encouraged to read more of the general literature dealing directly or indirectly with insect problems. I have in mind one article which to me is a masterful essay, so scientifically accurate and yet so simply stated that it could not but impress the student. I refer to a paper entitled "The Insect, the Farmer, the Teacher, the Citizen, and the State," by Dr. S. A. Forbes. Other papers which I have in mind which should be read by every student in entomology which bear upon the problems discussed this evening are Dr. C. Gordon Hewitt's capable address before the American Association of Economic Entomologists on "Insect Behavior as a Factor in Applied Entomology"; Crosby and Leonard's paper suitably treating "The Farm Bureau as an Agency for Demonstrating the Control of Injurious Insects"; Forbes' address before the Entomological Society of America on "The Ecological Foundations of Applied Entomology," and the timely discussions, one by Cooley on "Economic Entomology in the Service of the Nation," a second by Felt on "Entomological Research and Utility" and the third by Forbes, "Entomology in Time of War." *

These few remarks are given that we may think more of and possibly foresee some of the problems which are to confront us as a consequence of the changing conditions partly resulting from the war, and to emphasize the importance of giving more consideration to our methods of publicity, and are not intended to suggest any specific methods or changes.

The insects of cereal and forage crops which have come to our attention the past few years and which are likely to continue troublesome are not numerous but are of immeasurable importance, and we will briefly discuss the different problems individually.

THE HESSIAN FLY (*Mayetiola destructor*).

The Hessian fly, supposedly introduced into this country by the Hessian soldiers of Prussia, is, as Dr. Forbes has so truly put it, still a Hessian and is without doubt the greatest insect menace to wheat production in the United States. Especially at this time when wheat is so essential does this pest show up as one of the most important, if not the most important and most pro-German insect pest in the States. A year ago the Hessian fly was of little consequence, and again this fall it is not sufficiently abundant to cause undue anxiety but from past observations and the trend of conditions, and especially if we find the parasites

*Forbes, S. A. "The Insect, the Farmer, the Teacher, the Citizen and the State." Illinois State Laboratory of Natural History, 1915.

Hewitt, C. Gordon. "Insect Behavior as a Factor in Applied Entomology." Jour. Econ. Ent., Vol. 10, Feb., 1917, p. 81.

Crosby, C. R., and Leonard, M. D. "The Farm Bureau as an Agency for Demonstrating the Control of Injurious Insects." Jour. Econ. Ent., Vol. 10, Feb., 1917, p. 20.

Forbes, S. A. "The Ecological Foundations of Applied Entomology." Annals of Ent. Soc. America, Vol. 8, Mar., 1915, p. 1.

Cooley, R. A. "Economic Entomology in the Service of the Nation." Jour. Econ. Ent., Vol. 11, Feb., 1918, p. 16.

Felt, E. P. "Entomological Research and Utility." Scientific Monthly, Dec., 1917, p. 551.

Forbes, S. A. "Entomology in Time of War." Circular, Office of Illinois State Entomologist, 1917.

losing hold this fall as anticipated, it will only be a year or two before they are again an item of greatest importance to the wheat grower. The Bureau of Entomology, Division of Cereal and Forage Insects, under the direction of Mr. W. R. Walton, has instituted a series of stations in the principal wheat-growing areas of the United States where detailed studies are being made, in co-operation with the state authorities. Sowing experiments, where wheat is sown on different dates and variously handled, are in progress, in the district covered by the Lafayette Indiana Station, from Michigan to Tennessee. At Centralia, Illinois, in the centre of the southern Illinois wheat belt, we have a substation comprising 18 acres of land in charge of Mr. C. F. Turner and conducted in co-operation with Dr. S. A. Forbes. There intensive studies are made and much stress is laid on the effect of meteorological conditions. For obtaining meteorological data the several instruments giving records which may have a bearing on fly activities are utilized; thus we have in continuous operation not only the hygrothermograph, soil thermograph and rain gauge, but also the atmometer, an instrument which measures the combined effects of temperature, air currents and humidity, terrestrial radiation thermometers, anemometers, etc. This work has been in progress for two years and many valuable data have already been obtained.

The principal remedies advocated at the present time are sowing after the fly-free or safe date and destruction of infested stubble and subsequent volunteer wheat. Since one of these important recommendations is sowing after the so-called "fly-free" or "safe" date and since this date is necessarily not identical year after year, efforts have been made to determine a simple means whereby the county agricultural agent or a group of farmers can determine for their locality the safe sowing date each year. Thus various types of cages are being used to determine which are giving emergence records similar to natural conditions and checks are obtained by making daily records of Hessian fly caught on tanglefoot covered screens erected in the field and by daily egg counts made on specified plants. Sowing at the proper time is not alone a remedy and at most is not a preventive for spring infestation. To be 100 per cent. effective it must be accompanied by the destruction of wheat stubble wherever possible and the elimination of volunteer wheat. Our experiments show that plowing wheat stubble to a depth of 6 or 8 inches and subsequent harrowing destroys at least 92 per cent. of the flies but the practice of sowing clover in wheat makes it difficult to secure the universal practice of this measure and until the sowing of clover with other crops or by itself becomes more general we must continue to depend largely on sowing at the proper date to escape fly injury. Here again the value of proper sowing is dependent to a large extent on another factor, namely co-operation. If all of the farmers in the community do not follow the practice of sowing after the fly-free date, the one or more farmers disregarding the proper sowing date will furnish breeding grounds for the first brood of flies which may, if weather conditions are favorable, mature and infest the later sown wheat or at least the early sown crops will produce a generous supply of flies to infest the wheat in spring. Our laws do not make it possible for us to specify sowing dates and we must depend on the intelligence and honor of the community and much can be done towards securing the co-operation of a community by honor conditions. This is aptly illustrated by an occurrence which happened in southern Indiana a year or so ago when we were conducting a campaign in a particular locality to secure the co-operation of farmers to hold off sowing wheat until advised. One young man asked to learn the penalty if he promised to hold off sowing, but for some reason or other went

ahead and sowed before the proper time, and immediately an older man in the back of the room stood up and said "I guess there wont be any penalty but a heap sight of dishonor."

There are of course other considerations in the control of the Hessian fly such as the proper preparation of seed bed and use of fertilizers which enable plants to withstand injury, but it is not my intention here to go into details as I wish only to call your attention to the general subject of our problems. All of the methods of preventing or overcoming Hessian fly injury are what we might term good agricultural practices. Plowing under wheat stubble, except where it bears a good stand of clover, is good practice according to the agronomist, sowing after the fly-free date is, generally speaking, the best date to sow wheat regardless of insects, and the preparation of the seed bed and use of fertilizers are good agronomic practices pure and simple. Progress has been made with so-called fly resistant wheats and one or more of the wheats which are showing promising resistant qualities likewise rank above the average in yields.



Fig. 5.—Three year old apple orchard of 1,500 trees, completely defoliated by grasshoppers. Most of the orchard under cultivation and planted to navy beans which were destroyed previous to the orchard defoliation.

GRASSHOPPERS (*Melanoplus femur-rubrum* et spp.)

The past season we have experienced the most general and serious outbreak of grasshoppers for many years. Two years ago the grasshoppers were noticeably abundant in a few localities and in general the areas of grasshopper abundance were somewhat enlarged last year, while the past season they have appeared quite general and destructive in states where they have heretofore been of but comparatively little importance. There is every reason to believe that they will continue to be abundant next year, although probably not as severe as the past season.

As would be expected, the grasshoppers originated in fields such as timothy, blue grass and clover. The casual observer first noticed injury to clover towards cutting time when he found the plants completely defoliated, nothing remaining but the bare stalks and heads. The hoppers then left the clover for new fields, attacking such crops as were handy, as corn, soy beans, and navy beans; and not infrequently young orchards were defoliated. Thus at New Concord, Ohio, we

observed a three-year old apple orchard of 1,500 trees completely defoliated on August 17, and before the grasshoppers attacked the tree foliage they had cleaned up the navy beans which had been planted between the trees over most of the ground covered by the orchard. The insects even girdled the twigs in many places. At the same place we observed a bearing orchard with 20 per cent. of its ripening peaches destroyed, in some cases only the seed being left attached to the tree. It sometimes happens that the grasshoppers remain active until after wheat appears above ground in which case they may keep the wheat plants cut off close to the surface and as might be surmised, it requires but few of the insects to cut off the young tender wheat plants over a considerable area.

Excellent results in combatting grasshoppers have been obtained by the application of two standard remedies, namely, poison bait and the grasshopper catcher. As a general rule we have continued to recommend the standard poison bait formula of bran, molasses, fruits or lemon extract and a poison, preferably Paris green or crude arsenious oxide or white arsenic if neither of the first two mentioned are



Fig. 6.—Ripening peaches damaged by grasshoppers. Sometimes only the seed remained attached to the tree.

available. However, the experiments of the past year, and especially the experiments conducted at Janesville, Wisconsin, by Mr. D. A. Ricker of the Lafayette Laboratory, indicate the non-essentialness of fruits or lemon extract when dealing with mature grasshoppers and that further studies based on age of the insect, meteorological conditions, et cetera, will show the need of important changes in the formula for grasshopper bait. Likewise a half and half mixture of hardwood sawdust, preferably that taken from an ice house, and bran has given results sufficient to warrant its recommendation. Indeed, Mr. E. E. Twing, county agricultural agent of Kalkaska County, Michigan, reports thorough success the past season in his county campaign against grasshoppers, using sawdust alone in place of bran in the poison bait. He used several tons of white arsenic for poison bait for practically all of which sawdust was used as the base. The crude arsenious oxide mentioned is a by-product of the copper smelters of the western states and is obtainable in barrel lots at 8 to 9 cents per pound; and in ordering, a powdered grade should be specified. It has given excellent results the past season wherever we have had an opportunity to observe its use and the results are practically equal to those obtained where Paris green was used. It was tested out in a grasshopper

infested section in Michigan, for example, where it gave such good results that the farmers of that section of the state, according to information furnished by Mr. Don B. Whelan, extension entomologist of Michigan, will order a car load in anticipation of grasshopper and cutworm troubles next year.

We find that the poison bait can best be used in fields such as clover about the time they are cut, by first cutting around the field leaving a small central area uncut in which the hoppers will congregate and here they can be slaughtered by the use of a comparatively small amount of poison bait. The bait is likewise of greater value in corn-fields, orchards, and amongst other crops where the grasshopper catcher cannot be used; and in corn fields it is advisable to make the bait more adhesive by an extra amount of water or, better, twice as much molasses, scattering the mixture forcibly amongst the crops so that small particles will adhere to the foilage.

The grasshopper catcher, such as was first recommended by Dr. E. D. Ball and later advocated by Cooley and others, proved highly successful wherever tried.

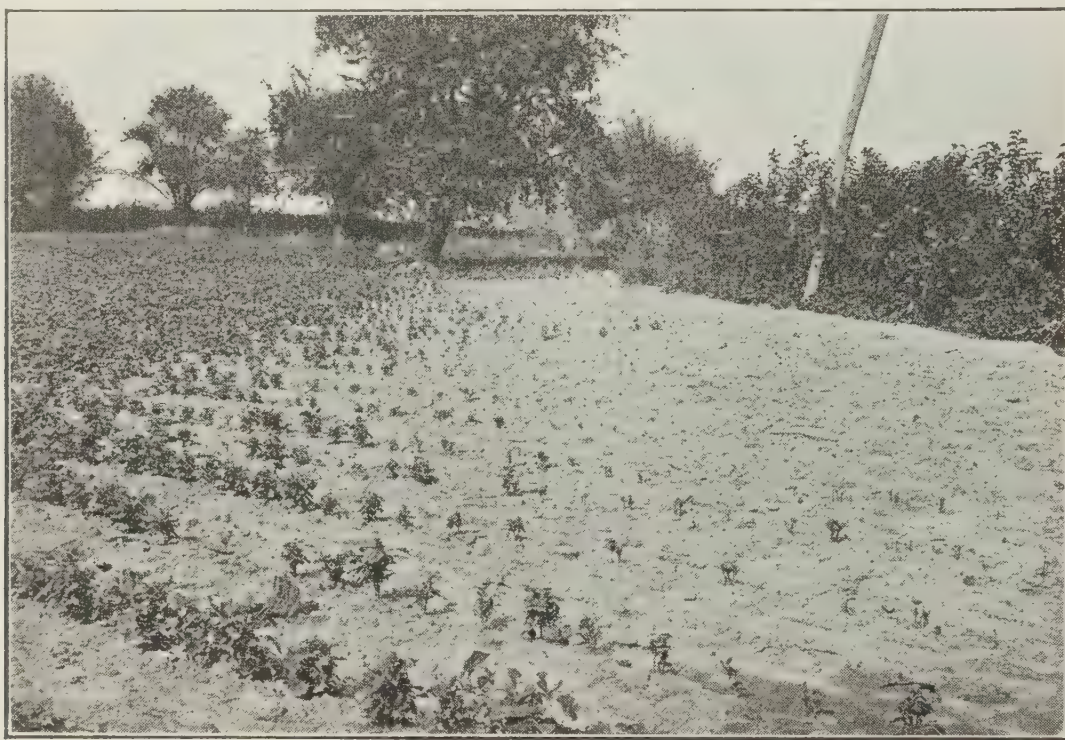


Fig. 7.—Field of navy beans being destroyed by grasshoppers entering from an adjoining field.

This catcher differs from the better known hopperdozer by having a screened box attached to the back (as illustrated), into which the grasshoppers are carried. This has a money value advantage over the hopperdozer in that the insects can be used as poultry feed. After filling the box it is a simple matter to haul the apparatus to the poultry yard where the grasshoppers can gradually escape through the front opening at a rate agreeable to a fair sized flock of chickens, thus giving us an ideal poultry self-feeder. Or, probably better, the insects can be bagged and allowed to die and dry within the bags and laid aside for winter use. Such feed for hens in winter appreciably increases egg production; not a small item these days. We have been able to secure an analysis of mature grasshoppers¹ through the kindness of Mr. E. G. Proulx, State Chemist of Indiana, with the following results.

¹*Melanoplus femur-rubrum*.

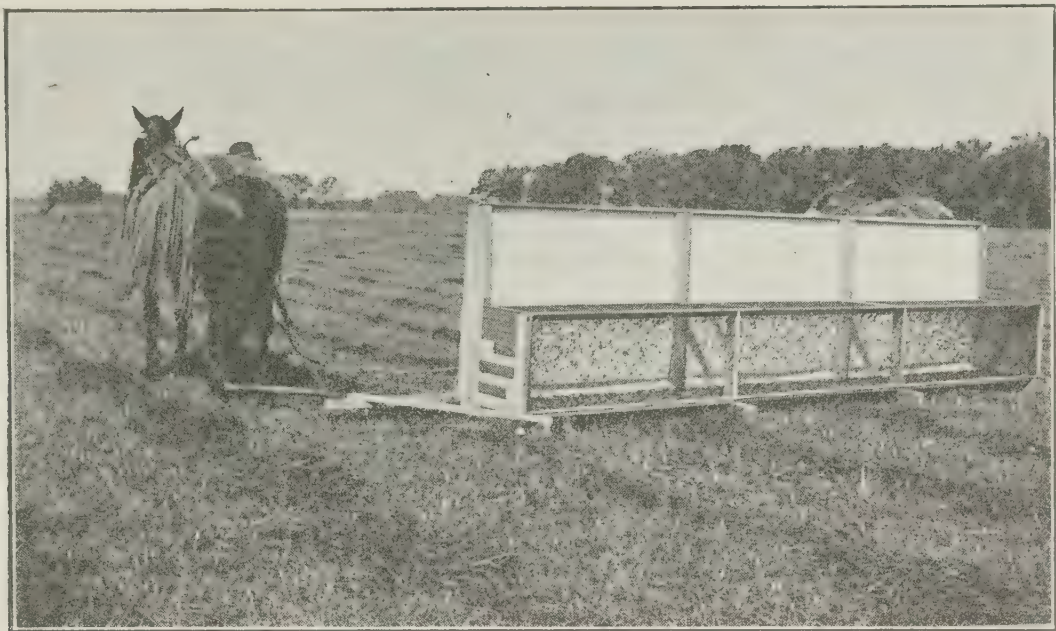


Fig 8.—Grasshopper catcher ready for action.

Analysis Based on Live Weight.

Moisture at 100°C with hydrogen	68.40%
Crude fat	1.94%
Crude protein	25.07%
Crude fibre	3.41%
Crude ash	1.24%
Total	100.06%

Calculation of Ash Constituents.

Nitrogen free extract	None
P ₂ O ₅	0.59%
Na ₂ O	Trace
K ₂ O	Trace

On this basis dried grasshoppers would contain approximately 75 per cent. of protein.



Fig. 9.—Grasshopper catcher in operation.

Our counts show an average of 500 live adult grasshoppers (*Melanoplus femurrubrum*) to a pint and about 1,530 to a pound live weight or 4,500 to a pound dry weight. The cost of a grasshopper catcher is from \$15 to \$25, according to the amount of new materials which must be purchased, and usually it is possible to secure the tin, the largest individual item of cost, as second hand roofing. Considering that such a machine will last for many years, it is easy to see that the cost is repaid in poultry food in a comparatively short time, to say nothing of the value derived by eliminating the insects.

It is not possible to recommend one or the other of these two grasshopper control measures as the more valuable. In some instances, where for example large comparatively level acreages are to be covered and where labour is not scarce, the grasshopper catcher can be used to better advantage and more economically than the poison bait, while in other cases the opposite is true.

CUTWORMS (*Noctuidae*).

We can expect trouble from cutworms every year, and the past season has not been an exception to the rule. In many sections, more especially in Iowa and Wisconsin, they have been more severe than ordinarily, damaging principally corn and garden crops. The *Feltias* were most generally common, although in many localities the *Euxoas* were the principal depredators. In southern Indiana the bottoms of the Wabash river and tributary streams are subject to what are commonly termed overflow worms (*Agrotis ypsilon*). Some injury occurred the past season, but the insects were not nearly so general as the year before. They invariably appear following a late overflow, that is on land which is overflowed and covered with water as late as early June. As the water leaves the ground the moths make their appearance from the higher surrounding land and lay their eggs in the still wet soil; and any crop planted on this ground, which is usually corn, is likely to be damaged if not completely destroyed by the cutworms. It is unusual for a cutworm moth to lay its eggs in moist soil, but this appears to be the usual habit of this species (*Agrotis ypsilon*) and it has already been recorded as a serious pest in the areas overflowed by the Ganges and other rivers in India. Woodhouse and Fletcher * and other authors have given us very interesting accounts of the habits of this species as worked out in India.

You are all familiar with the methods of controlling cutworms. Aside from early fall plowing and certain rotations whereby ground likely to be infested is planted to crops not susceptible to cutworm injury, we have on'y one method of control, which fortunately is quite efficient. Our experience teaches us that poison baits such as are used against grasshoppers are equally effective against cutworms. In the case of the overflow worm it is also possible to escape injury if the ground is cultivated immediately after the water leaves the land and before the moths lay their eggs, but this practice is applicable only for small sections of individual farms, for it is not possible for the individual to cultivate a very large area before the moths appear and begin oviposition.

THE SO-CALLED "SILK BUGS" (*Diabrotica 12-punctata* and *D. longicornis*.)

An insect, or rather two insects, which have ruined corn crops for many years in the overflow lands of the Ohio river in south-western Indiana but which have

*Woodhouse, E. J., and Fletcher, T. Bainbridge. "The Caterpillar Pest of the Mokameh Tal Lands." Agric. Jour., India, Vol. 8, pt. 4, Od., 1912, pp. 343-354.

been called to our attention only recently, are old and well-known reprobates more familiarly known to us as the southern corn root worm or bud worm (*Diabrotica 12-punctata*), and the northern corn root worm (*D. longicornis*). They are commonly pests of corn plants when in the larval stage, but as the "silk bug" it is the beetle that causes the damage and in an entirely different manner for it appears just as the ears are silking, cutting off the silk before the kernels become fertilized, thus causing the production of barren ears. One would expect the corn plant to be injured by the larvæ of these beetles earlier in its growth but such seems not to be the case, at least the corn shows no apparent injury. The probable reason for this is because the land is overflowed every winter and large amounts of rich humus are deposited, leaving the ground so rich that corn is planted year after year and the plants make such rapid growth that they overcome all injury to the root system inflicted by the larvæ of these two beetles.

We have no remedy for these pests under the conditions just given. As already

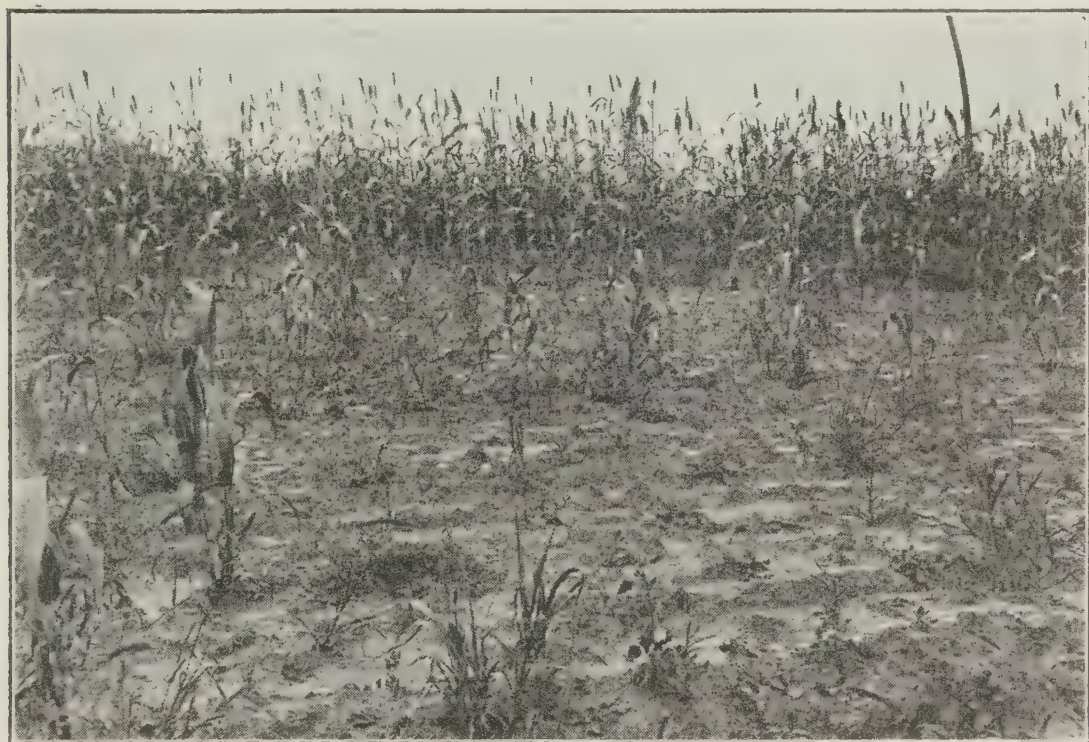


Fig. 10.—Field of cane damaged by White Grubs (*Lachnosterna* spp.)

stated the farmers prefer to grow corn on the ground year after year, giving the one species (*D. longicornis*) at least, ideal conditions for reproducing itself. Poisoning the beetle appears to be out of the question, but there is a likelihood of reaching them by the use of repellant dust sprays. More information on the life history and habits of the species under these conditions, new to us, is necessary before the problem can be intelligently attacked.

THE WHITE GRUB (*Lachnosterna* spp.).

Since the common white grubs have been serious pests in the northern states, this problem has been given considerable attention at the Lafayette Laboratory. The general results bearing on their economic relations have been published, and the natural enemies have been fully discussed in a paper soon to be issued. Many interesting data on their ecological and taxonomic relations have been, and

are continuing to be, accumulated through the co-operation of entomologists in Canada and the United States.

As might be expected for an insect having so widespread distribution and involving a life cycle of three years, the white grubs have several definite destructive broods. The important brood which occurs more or less continuously through the northern states from South Dakota to the Atlantic coast and in southern Ontario is present in the beetle stage every three years, 1917 being the last year the May-beetles were numerous. The year following the flight of beetles might be termed the "grub year" since the grubs are then in their most destructive stage. The important brood under discussion evidently began in an accumulative way some score of years ago. By 1909 and especially in 1912, they had become very abundant and destructive over a considerable area. In 1915 the grubs were again as abundant, or more so, as in 1912 but the damage was much less evident because the season was wet, which greatly assisted the corn and pastures to overcome some of the destructive work of the grubs. The past season (1918) grubs were again abundant, although less numerous than for several years past, but fortunately the conditions have been against the pests and comparatively small damage resulted. Parasites, predaceous enemies, and diseases have played a part in this result but certain climatic conditions are in a large measure responsible. In the spring of 1917 May-beetles were apparently as numerous in the soil as in any previous beetle year but the season was late and cold and the beetles came to trees in small numbers until quite late. Only a small percentage of the normal number of eggs were laid and most of these late in the season. As a consequence the grubs were abnormally small when cold weather set in; many of them too small to pass the winter successfully. This year the comparatively few grubs were small when the ground warmed up and they did not reach their destructive developmental stage until late in the year. From general observations it appears certain that the years of maximum abundance are passed and that we may expect fewer grubs of this particular brood for a number of years before conditions will again favor their enormous increase.

The principal methods of combatting white grubs are rotations and utilization of hogs and poultry. In white grub districts rotations should be arranged so that corn and other susceptible crops will not be planted on ground likely to contain grubs the year of their abundance, or better, the use of clover in the rotation, the clover to be followed by corn, since the beetles do not deposit many eggs in ground covered with a stand of clover during the May-beetle flight. The value of hogs to clear land of grubs has been repeatedly demonstrated. Other practices, such as fall plowing and the collection of May-beetles and grubs are only partially successful, but are good practices when supplemented by the measures already mentioned.

I have purposely discussed several of the more important insects of cereal and forage crops which have occupied our attention the past year or two. It is usual and to be expected that the economic entomologist spends much of his time with insects which appear in conspicuous numbers. There are however, hordes of insects of less importance which nevertheless are always present and which constitute a continuous drain on our crops but because of the inconspicuousness and gradualness of the losses they are not recognized seriously. Many of these inconspicuous insects are taking a heavy toll, and I believe we are coming to a time when they will be given their just consideration and it might be added, their just deserts.



Fig. 11.—Field of corn showing typical spotting of field caused by White Grubs (*Lachnosterna* spp.)



Fig. 12.—Trees defoliated by May-beetles (*Lachnosterna* spp.). The trees in centre are bur oak and the tree to right an elm.



Fig. 13.—Hickory woodlot defoliated by May-beetles (*Lachnosterna* spp.). The undefoliated tree to left is an apple.

INSECTS AS AGENTS IN THE DISSEMINATION OF PLANT DISEASES.

LAWSON CAESAR, O. A. C., GUELPH.

The following was delivered as the President's Address:

There are three great classes of plant diseases in the dissemination of which insects play a part. These are:—first, diseases due to fungi; second, diseases due to bacteria; and third, diseases whose cause has not been discovered but which are of a decidedly communicable or infectious character. This last class is often called "Physiological Diseases," or "Diseases of Unknown Origin," the latter term being preferable.

Before discussing the rôle of insects as disseminators it may be well to give a list of the common agents in the spread of plant diseases. They are: wind, rain (especially wind-driven rain), infected seed, infected manure, infected soil, insects, slugs, man with his teams and implements, birds and a few other animals.

Of these various agents every plant pathologist would say that so far as the dissemination of spores of fungi is concerned, wind and rain are, with very few exceptions, such as perhaps Ergot of Rye, vastly more important agents than insects. In the case of diseases that have been introduced recently and that are not yet widely spread, insects may play an important part in long-distance distribution and in the establishment of new centres of infection, especially if the spores of such diseases are of the type that is held together by a gelatinous substance which prevents their distribution by wind alone, though after being dissolved in moisture they may be blown short distances by wind-driven rain.

In the dissemination of plant diseases insects may function in three ways. First, they may serve as mere carriers of the spores or other causal organisms from plant to plant. The amount of disease thus spread compared with that by other agents is probably small. Second, they may cause wounds of various kinds which afford ideal conditions for spores or bacteria to germinate in and establish new infections. This is of course a very important function because many kinds of spores and a large percentage of bacteria seem unable to enter plants in any other way than through wounds. Third, they may serve as direct inoculators, not only bringing the organism with them upon or within their body but actually inserting it, when feeding, into the tissues where it finds favorable conditions for development. This last is on the whole the most important of the three methods.

INSECTS AS DISSEMINATORS OF FUNGUS DISEASES.

Sucking insects with a few exceptions, such as in the case of the spread of Ergot of Rye by flies and of Downy Mildew of Beans by bees, do not appear to play nearly so important a part in the spread of fungus diseases as do biting insects. This is probably because such sucking insects as feed upon plant tissues have minute, needle-like mandibles and maxillae and in feeding make very small wounds. These wounds do not expose the moist inner tissues or afford much better places for spore entrance and germination than do stomata and lenticels. Moreover, insects with such mouth-parts are not adapted for feeding upon spore masses and so seldom get their mouth-parts contaminated and act as direct inoculators of healthy plants. Biting insects are therefore much more important in the dissemination of fungus diseases of plants.

It is worth noting here that several species of Coleoptera and Orthoptera as well as some Lepidopterous larvæ feed freely upon spore masses, and not only

become covered externally with the spores but pass many of them uninjured through their body in the excreta. When this is deposited on healthy leaves or on other parts of the plant it affords an additional source of possible infection, either through the spores germinating and working their way through the uninjured tissues or through their being washed by rains into wounds.

EXAMPLES OF FUNGUS DISEASES DISSEMINATED BY INSECTS.

ERGOT OF RYE (*Claviceps purpurea*). This disease of cereals and grasses is said by plant pathologists to be spread in the summer chiefly through insects, especially flies, which are attracted to the sweetish, somewhat milky fluid in which the conidia produced on diseased ovaries of florets float. As this fluid is sticky the flies become contaminated and carry the spores to healthy florets, thus setting up new infections.*

DOWNY MILDEW OF LIMA BEANS (*Phytophthora phaseoli*). Sturgis has shown that this disease is apparently largely distributed by bees. He found that the Mildew failed to appear to any appreciable extent until the flowers began to expand, but that it became well established by the time the blossoms had fallen. He also found that it began regularly in those inner parts of the flower which were touched by the bee when seeking nectar, thus strongly indicating that the bees were the carriers and inoculators.

CHESTNUT BLIGHT (*Endothia parasitica*). This is a recently introduced disease and therefore its distribution to each new locality is much more important than would be the dissemination from tree to tree of some old, well established fungus. Studhalter, Ruggles, Metcalfe and others have studied the relation of insects to the Blight and have shown that while many insects distribute the spores it is chiefly those insects that cause wounds on the trees that are important as disseminators; because the disease can enter the tree only through wounds in the bark. Ruggles discovered that the Seventeen-year Cicada and a bast-miner were important agents and that the disease in many cases had entered through wounds made by them. The Cerambycid, *Leptostylus macula*, is important as a carrier and possibly also as an inoculator.

WHITE PINE BLISTER RUST (*Cronartium ribicola*). This is, as everyone knows, another recently introduced disease, and it is not yet established in our northern pine forests. Its spores lend themselves to wind dissemination, but it is thought that insects play an important role in the spread of the disease. Only a few months ago Gravatt and Posey gave an account of their finding tiny Gipsy Moth larvæ feeding greedily upon the spore pustules of the disease on pine trees, and becoming almost yellow with the countless spores that adhered to the hairs of their body. It has been shown that these tiny larvæ can be carried even 20 miles by the wind, so that distant spread of spores of the disease by them would be expected. Gravatt and Posey examined wind-borne larvæ found on Ribes (the alternate host of the disease) and found aeciospores on them. They also found that leaves fed upon by the larvæ contracted the disease. There seems to be no doubt that such larvæ are in the New England States important agents in distributing the White Pine Blister Rust.

GOOSEBERRY TWIG DISEASE (Undetermined fungus). In Burlington I have seen a large, well-cared-for garden of gooseberries in which almost every plant

*NOTE.—Since writing the above I have been informed by Prof. Howitt that it has recently been demonstrated that wind plays a more important part in distribution of conidia of ergot of rye than was formerly believed possible.

had from one to ten or more twigs dead or dying. Diseased twigs were sent to Geneva and examined by J. G. Grossenbacher, who wrote that the trouble was due to an undetermined fungus which entered through openings made by a Cambium Miner, apparently *Opostega nonstrigella*. The disease seemed to enter solely through these wounds.

SMALL CANKERS ON APPLES (*Leptosphaeria coniothyrium*). Parrott, Gloyer and Fulton in their study of Snowy Tree-crickets have shown how the cricket, *Oecanthus niveus*, is the agent in introducing the fungus that causes the small cankers around cricket egg punctures on apple trees. These cankers are found in Ontario as well as New York. This fungus, *Leptosphaeria coniothyrium*, is also the fungus that causes Raspberry Blight and is believed by the plant pathologists of Geneva to enter many raspberry canes through the wounds made by the egg punctures of the Tree-cricket, *Oecanthus nigricornis*.

HEART ROTS OF FOREST AND SHADE TREES (Several species of fungi). In almost every city may be seen maple trees with unsightly wounds, due to the burrows of the Maple Borer (*Plagionotus speciosus*). These wounds commonly allow the entrance of heart rots, which injure the wood and weaken the trees, often shortening its life. It seems reasonable to assume that similar diseases enter various forest trees, through injuries caused by Cerambycids, Buprestids or Ipids. It is true that most of these attack only sickly, dying or dead trees, but some attack healthy trees. Such gaping wounds as those caused in poplars and willows by the Snout Beetle (*Cryptorhynchus lapathi*) could scarcely fail to admit fungi. The evidence tends to show that this beetle is an important factor in the transmission of the European Poplar Canker (*Dothichiza populea*).

Referring to a species of Scolytus that attacks White Fir, Hopkins says "When the attack is not sufficient to kill the trees, these wounds heal over, but in the meantime a decay often sets in at these injured places, which extends through the heartwood and for several feet above and below the wound, thus rendering the wood worthless for lumber and often for fuel." In the same bulletin he says "It appears that insects contribute more to the spread of fungus of the bark and wood of the main trunk than do such diseases to the spread and ravages of insects."

BROWN ROT OF FRUITS (*Sclerotinia cinerea*). The spores of this disease are readily carried by the wind, but they usually fail to infect peaches and sour cherries in Ontario except through wounds or where fruits touch each other. Some varieties of plums and sweet cherries are very susceptible, even though their surfaces be unwounded. The joint investigations of the Bureaus of Entomology and Plant Pathology of the U. S. Department of Agriculture proved definitely the important part played by the Plum Curculio in the spread of this disease on peaches. Illingworth, Spencer and the writer in their studies of Cherry Fruit Flies found that sour cherries infested by the maggots of these flies were often conspicuously affected by Brown Rot and that where these insects were completely controlled very few cherries rotted even though they were left on the trees until overripe. Moreover, there is no doubt that placing maggoty cherries in baskets along with sound ones favours the development of rot, especially in warm weather; because even though the infected cherries be not rotten, they exude juice from the breathing holes made by the maggots and this gives ideal conditions for rot development.

Lack of space prevents our giving more examples of fungus diseases spread by insects, so we shall now pass on to the bacterial diseases.

INSECTS AS DISSEMINATORS OF BACTERIAL DISEASES.

Compared with other agents insects play a much more important part in the spread of bacterial than of fungus diseases. This is partly because bacteria do not to any great extent lend themselves to dispersal by the wind, whereas wind is the chief means of fungus spore dispersal. Another reason is that during the growing season,—the time of greatest dissemination,—the bacteria in some plants are wholly concealed within the plants and are only obtained for fresh inoculations by penetration through the surface to them. This insects do. A third reason is that about half of our worst bacterial diseases can enter plants only through wounds and such wounds are made chiefly by insects. It is worth noting that though insects like Aphids or Capsids with very slender, piercing mouth-parts play but little part in the spread of fungus diseases they are often very important in the spread of bacterial diseases. This is because they feed indiscriminately on healthy and diseased portions of plants and thus by penetrating the diseased areas get their mouth parts contaminated; for no set of mandibles and maxillae are too small to carry numerous bacteria if once they reach them. Once the mouth-part is contaminated inoculation of healthy parts is easy. It looks, however, as if White Flies and Red Spiders were exceptions and did not play much part as spreaders. There are also cases like Cucumber Wilt in which it is doubtful whether Aphids can act as inoculators. Further study will doubtless explain such exceptions.

The fact that out of the eight common and important bacterial diseases of plants in Ontario three are disseminated almost exclusively by insects, shows the importance of insects in relation to bacterial diseases.

EXAMPLES OF BACTERIAL DISEASES DISSEMINATED BY INSECTS.

CUCUMBER WILT (*Bacillus tracheiphilus*). It has been definitely proven that the Striped Cucumber Beetle (*Diabrotica vittata*), and to a less extent the 12-Spotted Cucumber Beetle (*Diabrotica 12-punctata*) are the chief and probably almost the sole distributors of this destructive disease and that if they could be exterminated the disease would almost disappear. It is very interesting to learn too that the disease is not only disseminated by these insects but is supposed to be carried over from one year to another by them and not through the soil.

PEAR BLIGHT (*Bacillus amylovorus*). This, as is well known, is a very destructive disease of pears, apples and quince, causing an enormous amount of damage some years and a considerable amount every year. It is nearly unanimously agreed that insects are the great factors in its dissemination both in the stage known as "blossom blight" and in the later twig blight stage. If a list were to be compiled of all the insects that had a part in the spread of this disease it would be a long one, for it includes many of the blossom frequenting insects, most sucking insects with piercing mouth-parts found on the apple and pear, and at least one bark beetle. In connection with this disease I may say that we have on several occasions found the gummy exudate at blossom time and have several times found ants feeding upon it. We also know that ants are common frequenters of the nectaries of blossoms. We consider ants therefore as the probable cause of the earliest cases of blossom infection.

SOFT ROT OF VEGETABLES (*Bacillus carotovorus*). This fairly common disease of cabbage, turnips, carrots, tomatoes, potatoes and celery is believed to enter solely through wounds, and insects and slugs are believed to be the main carriers of the organism as well as the chief inoculators. There has been a lot of

Soft Rot of Celery this year, for which the Tarnished Plant Bug is blamed. Efforts for control of the disease have been directed towards destroying this insect. The disease appears to winter over in the soil.

BACTERIAL WILT OF CRUCIFERS (*Pseudomonas campestris*). Jones and others have shown that insects and slugs are important and common disseminators, though there are also other agents.

OTHER BACTERIAL DISEASES. Very little is known as to the part played by insects in the spread of the other common bacterial diseases. Bean Bacteriosis (*Pseudomonas campestris*), Black Spot of Plums and Peaches (*Bacterium pruni*), Crown Gall (*Bacterium tumefaciens*) or Potato Wilt (*Bacillus solanisaprus*). We know, however, that the bacteria of the first two of these may enter directly through stomata without the aid of wounds.

INSECTS AS DISSEMINATORS OF PHYSIOLOGICAL DISEASES OR DISEASES OF UNKNOWN ORIGIN.

There are already many well known physiological diseases, and the list is being added to each year. A considerable proportion of our worst plant troubles come under this category. Insects do not play a part in the distribution of all, for instance they seem to have nothing to do with the spread of Peach Yellows and Little Peach. In many cases, however, insects appear to be either the sole agents in distribution or else very important agents. From the evidence available it would appear that most of the insects concerned are of the sucking and piercing types, though there seems no good reason why biting insects cannot also play a part. The infectious principle or virus seems in most cases and probably in all to be taken into the body of the insect and inoculation occurs through feeding.

EXAMPLES OF PHYSIOLOGICAL DISEASES OR DISEASE OF UNKNOWN ORIGIN DISSEMINATED BY INSECTS.

MOSAIC DISEASE OF SWEET PEAS... Most growers of sweet peas are probably familiar with this easily recognized disease which weakens the plants and diminishes the size and beauty of the blossoms. Taubenhaus has shown that it is readily transmitted by aphids, but he says any biting or sucking insect may spread it. Most of the spread will naturally be due to aphids, because they are the most common sweet pea insects.

MOSAIC DISEASE OF TOBACCO. This is a very important disease of Tobacco in the United States and may be identical with Mosaic Disease of Tomatoes, though probably not with Potato Mosaic. Allard has shown that the Peach Aphis (*Myzus persicae*), and also the Aphis (*Macrosiphum tabaci*), are very important spreaders of the disease. White Flies and Red Spiders he thinks do not distribute it.

MOSAIC DISEASE OF CUCUMBERS. This disease causes an annual loss of about \$1,000,000 in the United States. I have not seen it in Ontario but believe it has been found in a few localities. Doolittle and Jagger have proven that aphids are carriers and are probably the chief agents in its spread.

CURLY TOP OF SUGAR BEETS. This disease occurs in the South-western States and some years is exceedingly destructive. The Beet Leaf-hopper (*Eutettix tenella*) has time after time been proven to be the distributing agent and so far as known the sole agent.

SPINACH BLIGHT. This blight attacks both spring and fall crops of spinach in Virginia, Ohio and parts of New York. Leaves of affected plants become

mottled and malformed and the plants finally die. The disease is a very important one and is said to be spreading. It was formerly thought to be due to malnutrition, but is now known to be a communicable disease, the virus of which is transmitted chiefly by the aphid (*Macrosiphum solanifolii*) but also to a lesser extent by another aphid (*Rhopalosiphum persicae*) and by the Tarnished Plant Bug (*Lygus pratensis*). The most interesting discovery in connection with this disease is that not only do aphids transmit it but also that their offspring down to the fourth generation can do so even though none of these offspring have fed upon diseased plants.

McClintock and Smith who made the above discovery think it very probable that aphids are also responsible for the tiding over in their own body of the disease from spring to fall.

In conclusion we may point out that the plan of controlling such diseases as are spread chiefly by insects by destroying the insects responsible, is in most cases impracticable; because some of the worst offenders, such as the Striped Cucumber Beetle, several species of aphids and the Tarnished Plant Bug, are among the most difficult of insects to combat successfully.

It is also worth while pointing out that it is only during the last few years that any careful study has been made of insects as agents in the dissemination of plant diseases, and that though some very brilliant work has been done, especially during the last four or five years, there still remains great scope for further careful investigation by entomologists and plant pathologists working together in close co-operation.

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THE CABBAGE ROOT MAGGOT (*CHORTOPHILA BRASSICAE*).

H. C. HUCKETT, O.A.C., GUELPH.

A study of the life-history and control of the Cabbage Maggot (*Chortophila brassicae*) was undertaken this year under Prof. Caesar's guidance. The study is still far from completion but some interesting results from different control methods have been obtained. The most important of these is, that on the whole corrosive sublimate has given better results than discs even where discs have been cleaned after each cultivation. Similar good results have been obtained with corrosive sublimate by the representatives of the Vegetable Branch, Department of Agriculture, Toronto; in fact they made the suggestion that led to our testing it.

Another interesting feature was that round discs, with a round hole in the centre and a slit leading to it, proved equally as effective as the hexagonal discs with the star-shaped centres and slit leading to this. Consequently in the tables both discs have been classed together.

Tests were also made with tobacco dust and lime and also with tobacco dust and sulphur. The results were promising, but much further work will be required to determine accurately their value and best method of using.

TABLE SHOWING RESULTS OF EXPERIMENTS IN CONTROL OF CABBAGE MAGGOT
AT BURLINGTON

Method of Treatment.	Total No. Plants.	No. Plants killed by damping off or accident.	No. Plants killed by maggots.	No. Plants that survived.	No. Plants dwarfed.	% living Plants.	% vigorous living Plants.	% killed by other causes than maggots.	% killed by maggots.
Corrosive sublimate....	652	55	13	584	20	89.6	86.5	8.4	2
Check	163	9	78	76	20	46.6	34.4	5.5	47.9
Discs, both round and 6-sided. Earth removed after cultivation...	504	71	31	402	15	79.8	76.8	14.1	6.1
Discs, both round and 6-sided. Earth not removed after cultivation	474	42	161	271	37	57.2	49.4	8.8	34.0
Check	326	50	127	149	31	45.8	36.2	15.3	38.9

TABLE SHOWING RESULTS OF EXPERIMENTS ON CABBAGE MAGGOT AT GUELPH, 1918

Method used.	No. plants.	No. dead from all causes.	No. alive.	No. dwarfed.	% alive.	% vigorous.
Corrosive sublimate	99	0	99	0	100	100
Tarred felt paper discs, round and hexagonal, kept clean.....	101	0	101	0	100	100
Tarred felt paper discs, round and hexagonal, not cleaned.....	97	7	90	6	92.8	86.6
Check	99	44	55	15	55.6	40.4

NOTE.—The better results obtained from the tarred felt paper discs at Guelph than at Burlington were apparently due to the plants at Burlington being set deeper in the soil and to the soil being sand, whereas the Guelph soil was clay. The greater amount of shade and the greater difficulty in keeping soil off the plants at Burlington gave the insects a better chance to cause injury. The corrosive sublimate in both cases was used at the strength of 1 part to 1,000 parts of water, or one ounce to 50 pints of water, and was applied with a watering can with a spout in which was inserted a small piece of wood to conduct the liquid directly to the roots without waste. Four applications were given in each case, the first, four days after the plants were set out and the remaining three at intervals of seven days. At each application sufficient liquid was used to wet thoroughly the roots. At Guelph more than was necessary was applied and at first a slight yellowing of the plants occurred, but they soon outgrew this and became just as vigorous as any plants in the plot. At Burlington no yellowing was observed and the plants were very vigorous throughout.

Corrosive sublimate has shown itself to be a very valuable substance in combating this pest, but a great deal of work is yet necessary to determine the best strengths to use, the number of applications necessary, and the best time to make each of these. Tests will also have to be made to determine whether this substance can safely be used with radishes and if so in what way. There is very little doubt that the growers would much more readily use corrosive sublimate than apply the tarred felt paper discs. They seem to have a decided objection to using the latter, though they have been recommended for so many years.

PROF. JONES: In the treatment of cabbage plants for Root Maggot was there any difference observed in the fertility of the soil to which corrosive sublimate had been added as compared with that to which it was not added?

MR. HUCKETT: No observable difference.

PROF. JONES: Corrosive sublimate is one of the strongest of our disinfectants, and in addition to destroying the egg or the larva of the Cabbage Maggot it would have a marked influence on the bacterial content of the soil. It would destroy the nitrogen fixer and the nitrifiers and also the decomposing species of bacteria; and providing there was not plenty of available food material in the soil ready for the plants to use, then on account of the corrosive sublimate I should imagine that synthetic action of the bacteria in the soil as well as decomposition action would be materially interfered with. That would depend upon how long the mercuric chloride was active in the soil after it had killed the maggots. Of course

the corrosive sublimate would become inactive within a reasonably short period, its poisonous action being neutralized by its affinity for proteid substances present in the soil, but to what extent its action would interfere with the fertility of the soil I think leaves room for some experimental worker to demonstrate.

SOME CHAPTERS OF THE EARLY HISTORY OF ENTOMOLOGY.

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THE BEGINNINGS OF ENTOMOLOGY.

The beginnings of all sciences are full of interest as they reveal the gropings of earnest seekers after truth. Every natural science has an early stage when the knowledge of nature was extremely limited and clouded with superstition. It has been said that, "All knowledge begins and ends with wonder, but the first wonder is the child of ignorance"; but while wonder and curiosity have been great impulses to the study of that great mysterious world of nature, much of the knowledge of nature has come as the direct result of the experiences of early man in gaining his livelihood. Consequently we must look for the beginnings of Entomology in the practical lore of the hunter, the shepherd and the gardener long before the facts had been collated by the early naturalists.

A few references to insects are made in early writings, locusts, bees and ants being often mentioned by the old Hebrew writers (Exodus 8, Judge 14.14, Proverbs 6, Proverbs 30, Joel 1.4, Joel 2.25, Joel 2.2-10.) and scarabæid beetles sculptured in stone by the old Egyptians. It is very probable that the peoples of some of the ancient civilizations possessed considerable knowledge of natural history, including insects.*

Bee-keeping was a favourite occupation in Palestine, Assyria, Babylon, Carthage, Egypt, Greece and Rome. The Egyptians had even floating apiaries. A hieroglyphic bee has been found sculptured on a Sarcophagus containing the mummy of Mykerinos, King of Lower Egypt, about 3,633 years B.C., no doubt emblematic of the relationship between the King and the people.

Silkworms were cultivated many thousand years ago by the Chinese and the people of India, and the silkworm industry was an agricultural one.

We find also that the Egyptians had a high grade treatise on medicine 1500 years B.C., which must have been based on centuries of observation and practice, and also upon a knowledge of related sciences. However, whatever may have been the accomplishments of these people, no records have been preserved. To the Greeks, therefore, belong the credit of producing the first scientific treatise on natural history.

The first entomologist of whom we have any record was Aristotle (384-322 B.C.) Parts of three of his zoological works viz., *Historia Animalium*, *De Partibus Animalium*, and *De Generatione Animalium*, have been handed down to us. These reveal the many sided nature of his activities, for he was not only a collector and

*When we reflect that practically all our cultivated plants and domesticated animals are of pre-historic origin, we are obliged to believe that pre-historic man maintained for long ages a high civilization, when skill and labor not only transformed wild life into cultivated fruitfulness and domestic use, but also made progress in the knowledge of the creatures (including insects) that associated with the plants and animals. Recent researches go to show that such an agricultural civilization occupied the Mediterranean Basin from Portugal through Asia Minor and Persia to Korea. Pre-historic cultivation terraces in this district still show how extensive were the plantations in ancient times.

classifier, but also a morphologist and inductive philosopher. He studied the life histories of many insects, he made many dissections and resolved the organs into tissues. His classification of insects, although based largely on external features, remained unimproved for more than 2,000 years, and his generalizations contained the ideas of an evolution from the simplest to the highest organisms in nature.

Concerning his own work Aristotle says: "I found no basis prepared, no models to copy.....mine is the first step, and therefore a small one, though worked out with much thought and hard labor. It must be looked at as a first step and judged with indulgence."

Although Aristotle believed in the spontaneous generation of certain insects and other animals that appeared in the processes of putrefaction, his views regarding the generation of the higher animals are expressed in the sentence, "All living creatures, whether they swim, or walk, or fly, and whether they come into the world in the form of an animal, or of an egg, they are engendered in the same way." In fact, Aristotle had very definite even modern views regarding embryology, for he had studied the forming chick in the shell. He might be termed an epigenist, for he believed that "the parts of the future organism do not pre-exist as such, but make their appearance in due order of succession."

It is interesting to note that the methods of Aristotle are those of modern scientific workers, viz., INVESTIGATION BY OBSERVATION AND EXPERIMENT. It required, however, more than 2,000 years for workers to realize the importance of his methods in the study of nature.

Regarding Aristotle's knowledge of insect development and structure it may be said that he knew that there were male and female insects, and that they reproduced sexually. He knew that drone bees develop without fertilization, but he called the "queen" the "king" of the hive. He thought that "nits" do not produce animals, that spiders bring forth live worms instead of eggs, and produce threads of their webs from the external part of their bodies, that caterpillars are produced from cabbages daily, and that many insects rise spontaneously from putrefaction. He believed, too, that all invertebrates were bloodless. He separated the crustacea from insects, and divided the insects into winged and wingless. His sub-divisions were also partly perfectly natural. He considered the larva a prematurely hatched embryo and the pupa as a second egg.

Professor Sundevall estimates that Aristotle indicated and described about 60 species of insects and arachnidans and about 24 species of crustacea and annelids.

Aristotle is said to have written a treatise on bees, but if so, no trace of it has reached us. Columella, however, tells us that the Greeks were proficient bee-keepers. That the Romans practised apiculture is very evident for Virgil devotes the fourth book of the Georgics entirely to a discussion of bees, their habits, economy, and management. Following Aristotle, he calls the queen the king of the hive, and believed that bees originate from decomposing bodies of bullocks (See also Judges 15 for a similar belief).

The Greek poets occasionally refer to insects. For example, Xenarchos says: "Happy is the Cicada, since its wife has no voice."

While Aristotle's knowledge of insects was full of crudities and errors, it must be confessed that he did a large amount of valuable work that has stood the test of time.

After Aristotle, the study of natural history declined and no work appeared until that of Pliny the Elder (23-79 A.D.) the Roman general and historian. His voluminous writings on natural history have been well preserved but they contain nothing new. They are complications of the works of previous writers

and include much fable and fancy joined with fact. Pliny's system of classification of animals is inferior to that of Aristotle's, although he adopts the latter's in the case of insects.

After Pliny the study of natural history declined rapidly and no attention was given it for about 1,500 years. Not only during the Dark Ages following the fall of the Roman Empire, but during the Middle Ages the study of nature was thoroughly discouraged as "proceeding from a prying and impious curiosity."

Observation and reason were overthrown by biblical and classical authority and mental activity assumed the form of metaphysical speculation.*

Happily, however, much information was handed down regarding Natural History during these dark centuries in the form of practical lore of the farmer and gardener to which I have already referred, so that when science again showed signs of revival the naturalists had a basis on which to work.

THE REVIVAL OF SCIENCE.

For several centuries bold minds had revolted against the traditional adherence to authority, and in the 15th and 16th centuries, Galileo, Descartes, and Vesalius (1514-1564) working along different branches overthrew the old traditions, and the new movement for the revival of science was fairly launched.

Mention should here be made of some of the investigators of the new era on account of their influence on the pioneer entomologists. Vesalius, a Belgian, studied medicine in Paris and gave much attention to anatomy. His great work "De Humani Corporis Fabrica" is a classic and "created an epoch," as it "overthrew dependence on authority (Galen) and re-established the scientific method of ascertaining truth."

Harvey (1578-1667) was the pioneer physiologist, and his splendid researches on the Circulation of the Blood have earned him a place among the great pioneers of science who questioned and experimented with nature to find out her secrets. Like Aristotle, he considered the larva a prematurely hatched embryo, and the pupa a second egg (*De Generatione Animalium*).

THE GREAT INSECT ANATOMISTS.

The impetus given to the study of anatomy by Vesalius produced in the 16th century a large number of workers like Wotton, Gesner, Aldrovandi, and Jonston, who have been called the "encycopedists" on account of their voluminous writings on many topics.†

*This attitude was expressed by Redi about 1668, thus: "Because he's Aristotle, it implies that he must be believed, e'en though he lies."

A curious collection of manuscripts called the "Physiologus" or the "Bestiarius", and produced under theological guidance, formed the main source of information on natural history during these times. The accounts deal with biblical as well as mythical animals, such as the unicorn, dragon, basilisk, and phoenix. Many are represented as symbolical of religious beliefs, and moral reflections are interjected at frequent intervals. Locy says: "The Zoology of the Physiologus was of a much lower grade than any we know about among the ancients."

†Conrad Gesner (1516-1558), a Swiss, was an indefatigable collector, observer and writer. His papers on insects were published after his death by Thomas Mouflet, about 1634. Gesner is justly considered as the restorer of natural history. Long lost treasures were again made known and a stimulus was given for further research.

Aldrovandi (1552-1605) described the natural history of insects at great length in seven books. He divided insects into land and water dwellers, and these were subdivided according to the structure of their wings and legs.

The writings of Gesner and Aldrovandi contain many ridiculously improbable statements gathered from ill-attested sources and repeated from the writings of Aristotle and Pliny.

In the 17th century two insect anatomists, Marcello Malpighi (1628-1694) of Italy, and John Swammerdam (1637-1680) of Holland, made large contributions to science. Malpighi's treatise on the *Silkworm*, published in 1669, has become a classic. It was a pioneer work in a new field. The author had the advantage to the new aid to vision, the microscope, which came into use at this time through the ingenuity of Hooke, Malpighi, Swammerdam and Leeuwenhoek. Miall says, "For the first time the dorsal vessel, the tracheal system, the tubular appendages of the stomach, the reproductive organs and the structural changes which accompany transformation were observed." Moreover, he observed and described the nervous system, the urinary tubules (Malpighian) and the silk-forming apparatus.

"This research," says Malpighi, "was extremely laborious and tedious on account of its novelty, as well as the minuteness, fragility and intricacy of the parts which required special manipulation; so that when I had toiled for many months at this incessant and fatiguing task, I was plagued next autumn with fevers and inflammation of the eyes. Nevertheless such was my delight in the work, so many unsuspected wonders of nature revealing themselves to me, that I cannot tell it in words."

Miall says: The last distinct glimpse we got of him is interesting. Dr. Tancred Robinson, writing to John Ray, from Geneva, April 18th, 1684 tells how he met Malpighi at Bologna. They talked of the origin of fossils, and Malpighi could not contain himself about Martin Lister's foolish hypothesis that fossils were sports of nature. "Just as I left Bononia," he continues, "I had a lamentable spectacle of Malpighi's house all in flames, occasioned by the negligence of his old wife. All his pictures, furniture, books, and manuscripts were burnt. I saw him in the very heat of the calamity, and methought I never beheld so much Christian patience and philosophy in any man before; for he comforted his wife, and condoled nothing but the loss of his papers, which are more lamented than the Alexandrian Library, or Bartholine's Bibliothese at Copenhagen."

Swammerdam's researches on the May-Fly and the Honey Bee entitle him to a high place among insect anatomists. He found by dissection that "the queen is the mother of the colony, the drones the males, and the working bees the neuters; but he did not find out that the neuters were only imperfect females" (Miall). Swammerdam's contributions were collected and published after his death by Boerhaave under the title of "*Biblia Naturae*." The folio edition is a volume of 410 pages of text and 53 plates of excellent drawings. Swammerdam was a more critical observer than Malpighi, as evidenced by his accurate and complete descriptions and anatomical work.

Boerhaave gives us a picture of Swammerdam at work which the reader does not soon forget. "His labors were superhuman. Through the day he observed incessantly, and at night he described and drew what he had seen. By six o'clock in the morning in summer he began to find enough light to enable him to trace the minutiae of natural objects. He was hard at work until noon, in full sunlight, and bareheaded, so as not to obstruct the light; and his head streamed with profuse sweat. His eyes, by reason of the blaze of light and microscopic toil, became so weakened that he could not observe minute objects in the afternoon, though the light was not less bright than in the morning, for his eyes were weary, and could no longer perceive readily" (Miall).

The title of Swammerdam's work is entitled as follows:—

THE BOOK OF NATURE;
OR, THE
HISTORY OF INSECTS:

Reduced to distinct CLASSES, confirmed by particular INSTANCES, Displayed
in the Anatomical Analysis of many Species.

and

Illustrated with Copper-Plates

including

The Generation of the Frog, the History of the Ephemerus, the Changes of Flies,
Butterflies and Beetles:

with the

Original Discovery of the Milk Vessels of the Cuttlefish, and many other
curious Particulars

BY JOHN SWAMMERDAM, M.D.

with

THE LIFE OF THE AUTHOR, By HERMAN BOERHAAVE, M.D.

Translated from the Dutch and Latin Original Edition,

By THOMAS FLLOYD.

Revised and Improved by Notes from Réaumur and others,

By JOHN HILL, M.D.

LONDON:

Printed for C. G. SEYFRET, Bookseller, in Dean Street, Soho.

MDCCLVIII.

He studied the phenomena of metamorphosis, and showed that the butterfly is contained within the chrysalis, and that the organs of the latter are developed in the caterpillar. He emphasized the point that the various changes do not occur suddenly. He distinguished between metamorphosis and moulting. Moreover, he opposed the idea of spontaneous generation.

The 18th century produced Pierre Lyonnet (1707-1789) of Holland, who surpassed all his predecessors in minute dissection. His memoir on the Goat or Willow Moth, (*Cossus ligniperda*), published in 1750, will always remain a classic of insect anatomy. It contains 18 quarto plates with 137 figures, but the text

is mainly a description of the plates. One does not know whether to marvel more at the great patience and manual skill required to make out such detailed dissections, or at his wonderful drawings and plates.

Lyonnet's skill in dissection, however, surpassed his knowledge of anatomy. His great monograph "reveals the lack of insight of a trained anatomist" largely on account of the fact that he did not receive that careful preliminary training in anatomy that his two great predecessors, Malpighi and Swammerdam, received. His contributions to science are confined entirely to matters of anatomy. He showed clearly for the first time what are now known as "imaginal disks" or "histoblasts."

Coming to the 19th century, the names of four anatomists appear on the scroll of fame, viz.: Strauss-Dürckheim, Dufour, Newport and Leydig. The trend of research was gradually changing from a monographic study of a single form to a comparative study of insects, and these with other invertebrate forms, and finally to histological and embryological investigations.

Hercule Strauss-Dürckheim (1790-1865) of France, continued the work of Lyonnet and published in 1828 a most valuable monograph of the Anatomy of the Cockchafer, entitled, "*Considérations Générales sur l'Anatomie Comparée des Animaux Articulés, aux quelles on a joint l'Anatomie Descriptive du Melolontha Vulgaris donnée comme exemple de l'Organization des Coleoptères.*" It contained many finely lithographed plates of 109 sketches which compare very favorably with those of Lyonnet. The dissections, however, lack the marvelous details of Lyonnet's work, but his memoir has the merit of broadening the scope of anatomy and of making it comparative.

Leon Dufour, a Frenchman, published between 1831 and 1834 a large number of memoirs on the anatomy and metamorphoses of different families of insects, thus extending the work of Strauss-Dürckheim in the line of comparative anatomy.

Dufour merits attention also because the great Fabre got his inspiration for his life work on reading a volume of Dufour's that came by chance into his hand. It was "the electric impulse that decided his vocation."

Dufour was a disciple of Latreille, and practised as a country doctor. Perhaps his greatest contributions to entomology were along the line of bionomics. He lacked, however, the requisite patience of concentrating his attention for a long period upon a definite object, although he enriched science with a large number of important facts; he was to a large extent unable to interpret them. For example, Legros relates how Fabre had his curiosity aroused when reading Dufour's account of his finding a small metallic Buprestis in the nest of a *Cerceris* wasp; apparently dead but without any symptoms of decay. To Dufour the Buprestis was dead and he attempted an explanation of the phenomenon. Fabre decided to make observations for himself, and "to his great surprise he discovered how incomplete and insufficiently verified were the observations of the man who was at that time known as the Patriarch of Entomologists."

Newport was the first of the modern type of Entomologists, since he applied for the first time the facts of embryology to insect anatomy. In 1832-34 he published his researches on the modification of the nervous system during the larval, pupal, and adult stages.

Leydig (1821-1908) is thoroughly modern; he broadened the work of Newport by the introduction of histological methods. His great memoir, "The Structure of the Animal Body" was published in 1864.

GREAT INSECT ECOLOGISTS

By the term "ecologist" is meant here a student of the habits and life histories of insects. Most of the men whose names have already been mentioned contributed very materially to our knowledge of insect habits, but these contributions were incidental to the study of anatomy.

Francesco Redi, the Florentine scholar, poet, physician and naturalist (1626-1697) did much to shatter the dogma of spontaneous generation which, as we have already seen, had been accepted as the doctrine of the Church, and the scientific world for nearly 2,000 years. Aristotle had accepted the theory to explain the origin of many of the "bloodless" or invertebrate animals, but had excepted the higher animals. Redi proved by experiment that if the flesh of a dead animal were protected carefully from intruding insects no grubs or insects developed in it.

He was not so successful in solving the problem of the generation of parasites and gall insects where he was forced to the conclusion, in spite of contrary convictions, that these insects arose spontaneously. The results of his researches were published in 1668 under the title of "Experiments on the Generation of Insects." His translator says that "The title of the work gives little hint of its varied contents. It is a formal letter grown into a book showing the attitude of seventeenth-century Italians towards their surroundings, and affording a clear insight into their conception of nature. The opinions of priests, philosophers, and poets of the period on natural phenomena of perennial interest, and here set down with grave simplicity, enlivened by occasional humorous comment, and many elaborate quotations from the classics are inserted as proof or refutations of theories advanced."

Among the other interesting topics discussed by Redi are Cherry Fruit Flies, Sheep Bot Flies, and Biting Lice of Birds. Our President, I surmise, will be interested in his description and drawing of the Cherry Fruit Fly. His drawings of the Mallophaga are numerous and suggestive of much close observation. He tells us that he used a microscope furnished with three lenses and made in Rome, and that the drawings were made at his request, by F. Pizzichi.

To the student of the history of biology, the book is a milestone marking the beginning of a great epoch. It records the first, and therefore the most important, statement supported by experimental evidence of that great generalization named by Huxley the Theory of Biogenesis.

It will be noted that Germany lagged behind the other countries of Europe in the study of insects, producing only two writers of any merit. Roesel von Rosenhof (1705-1759), a miniature painter, published "Insecten-Belustigungen," which contains many observations on the habits and metamorphoses of insects. His colored figures and sketches are interesting even at the present time. Frisch, a school teacher, published a number of observations.

Charles Bonnet (1720-1793), acting on the suggestion of Réaumur, demonstrated the sexual reproduction of aphids, but it was Lyonnet who discovered that male aphids appeared towards the end of summer and fertilized the eggs that wintered over.

Francois Huber (1750-1831), the blind Swiss naturalist, has given us much interesting information regarding the habits and economy of the honey-bee. It is said that "out of simple curiosity having undertaken to verify certain experiments of Réaumur's he was so completely fascinated by the subject that it became the object of the rest of his life" (Legros). He made discoveries respecting the impregnation of the queen, the conversion of a worker-larva into a queen by the

workers, the origin and elaboration of wax, the nature of propolis, the manner of constructing the cells and combs, and the ventilation of the hives. These discoveries are all the more wonderful when we remember that during the first period of his investigation Huber employed a half-educated assistant to make the necessary observations and experiments. During the middle and later periods of his life his talented wife and his son Pierre acted as his assistants. The latter made contributions of his own on the habits of ants and bees.

One of the first writers to give more attention to general habits and life histories than to structure was Réaumur, (1683-1757). His "Histoire des Insectes" gave a great impetus to the development of the scientific method of research by observation and experiment, and is one of the great entomological classics. Réaumur did not possess the manual skill for dissection or drawing of Lyonnet, Malpighi of Swammerdam, and he had to employ artists to draw for him. He possessed, however, great patience in observation and displayed much ingenuity in his experiments. Besides, his pages show a charm of language which made his volumes popular and gave them a wide reading.

Baron Chas. De Geer (1720-1728) of Sweden, was an anatomist, physiologist, and systematist, and his great memoirs on the "History of Insects" (7 volumes) compare very favorably with those of Réaumur. "A pupil of Linnaeus and a great admirer of Réaumur, he combined the systematic regularity of the one with the experimental skill and patient observation of the other." His works have always been considered a storehouse of important facts, clear descriptions, and enlightened observations. They contain "descriptions of upwards of 1,500 insects, a general history of their manners and metamorphoses and carefully executed engravings filling 238 plates."

Like Réaumur, De Geer was born to wealth, and had immediate command of everything that could help him in his investigations. Compared with Réaumur he was more concise and precise in detailing facts and vastly more methodical. On the other hand he showed less skill in making and recording his observations and experiments.

GREAT INSECT SYSTEMATISTS.

Aristotle, as I have already observed, may be considered the first systematist, and his classification remained practically unchanged until the 17th century, when John Ray (1628-1705) made many important advances, bridging, as it were, the Medievalist and the modern systems. Ray published systematic works on both plants and animals, but his chief contributions were to botany. "He was the first to define the use of the word "species" and to lay emphasis on anatomical characteristics as a basis of classification." In his *Methodus Insectorum* the Arachnida, Crustacea, Myriapoda and Annelida are grouped with the Hexapoda under Insecta.

According to Ray, all similar individuals which show constant characters from generation to generation, or which breed true, form a species.

Carl Linnaeus (1707-1778) was a compatriot of De Geer. He was essentially a systematist. Sachs says: "He might almost be said to have been a classifying, co-ordinating, and subordinating machine." It is hard for us to realize the immense service Linnaeus did for science by the introduction of some system of order among the multitude of living things.

Locy says: "The chief services of Linnaeus to natural science consisted of these three things: bringing into current use the binomial nomenclature, the

introduction of terse formulae for descriptions, and fixing attention upon species." The "Species Plantarum" published in 1753 and the tenth edition of the "Systema Naturae" in 1758 are essentially catalogues of the names of the plants and animals arranged in a methodical way. The terms, class, order, genus and species, were established in classification. With the adoption of the binominal methods, "certainty and precision were introduced into the art of description."

Linnaeus' classification of the Insecta is as follows:—

- | | |
|---|-----------------|
| I.—Insects with four wings: | |
| 1. The anterior ones horny. | 1. Coleoptera. |
| 2. The anterior ones half horny and half membraneous. | 2. Hemiptera. |
| a. All covered with scales. | |
| 3. The anterior and posterior membranous. | 3. Lepidoptera. |
| b. All naked. The nervures | |
| * Reticulated. | 4. Neuroptera. |
| ** Ramose. | 5. Hymenoptera. |
| II.—Insects with two wings: | 6. Diptera. |
| III.—Insects without wings: | 7. Aptera. |
| 1. With six feet, louse, flea and some others. | |
| 2. With more than six feet. | |
| a. Head connected with thorax (spiders, crabs, etc.). | |
| b. Head free (centipedes, wood-lice, etc.). | |

His *Insecta* corresponds, therefore, to our modern Arthropoda.

De Geer's classification is:—

- | | |
|--|--|
| 1.—Insects with wings: | |
| A.—Gymnoptera. | |
| 1. Lepidoptera. | |
| 2. Elingula (Ephemerae, etc.). | |
| 3. Neuroptera (Libellulae, and other Linnean Neuroptera). | |
| 4. Hymenoptera. | |
| 5. Siphonata (Aphides and Cicada). | |
| B.—Vaginata. | |
| 6. Dermaptera (bugs and water bugs). | |
| 7. Hemiptera (cockroaches and grasshoppers). | |
| 8. Coleoptera (beetles). | |
| C.—Diptera. | |
| 9. Halterata (Linnaeus Diptera). | |
| 10. Proboscidae (the genus Coccus). | |
| II.—Insects without wings. Aptera: | |
| D.—Saltatoria. | |
| 11. Suctoria (the genus Culex). | |
| E.—Gressoria. | |
| 12. Auchenata (the general Lepisma, Podura, Termes, Pediculus, Recinus). | |
| 13. Atrachelia (the spiders and crabs). | |
| 14. Crustacea (the Isopoda, Amphipoda, and Myriapoda of Latreille). | |

Fabricius (1748-1808), a Dane, was born in Schleswig and became a Professor at Kiel. His classification, published in his "Systema Entomologiae" in 1775 followed along a new path, the orders being defined by differences in the mouth-parts. By his system insects far remote were grouped together. His method of using solitary characters did not make for natural grouping.

His classification is as follows:—

I.—INSECTS WITH BITING MOUTHS.

- | | |
|---------------------------------|----------------------------------|
| A.—Two pairs of mandibles. | |
| a. The lower ones having palpi. | |
| 1. Free without covering. | 1. Class. Eleutherata (beetles). |
| 2. Covered. | 2. " Ulonata (Orthoptera). |
| 3. Connate with labium. | 3. " Synistata (Neuroptera). |
| 4. Distended, thin, coriaceous. | 4. " Piegata (Hymenoptera). |

- | | |
|---|--|
| 5. Horny, strongly toothed, labium without palpi. | 5. Class. Odonata (Libellulæ). |
| 6. All without palpi. | 6. " Mitosata (Scolopendra). |
| B.—A pair of maxillæ resembling scissors. | 7. " Unogata (scorpions and spiders). |
| C.—More than two pair of maxillæ. | |
| 1. Within the labium. | 8. " Polygonata (Isopoda). |
| 2. Outside the lip closing the mouth. | 9. " Kleistognatha (short-tailed crabs). |
| 3. Outside the lip but covered by the palpi. | 10. " Exochnata (long-tailed crabs). |

II.—INSECTS WITH SUCTORIAL MOUTHS.

- | | |
|---|------------------------------------|
| 1. In the mouth a spiral tongue. | 11. Class. Glossata (Lepidoptera). |
| 2. In the mouth a horny proboscis, surrounded by jointed sheaths. | 12. " Rhyngota (Hemiptera). |
| 3. In the mouths a soft unjointed proboscis. | 13. " Antiliata (Diptera). |

Summarizing the results briefly one may say that Swammerdam based his classification on *metamorphosis*, Linnaeus on *wings*, and Fabricius on *mouth-parts*.

As already observed the classifications of Linnaeus, De Geer, and Fabricius were based chiefly upon superficial features and not upon deep fundamental characters. The systems were artificial, but convenient for purposes of identification. The natural system was not fully established for another seventy-five years, and was elaborated by Cuvier (1769-1832), Latreille, Lamarck, Leach, Kirby and Spence, Oken and Macleay. The division Aptera had long perplexed systematists. Cuvier proved clearly that the crabs, etc., could not be retained among insects, forming the class Crustacea for them.*

Lamarck removed the spiders, scorpions, etc., constituting the class Arachnida for them, including therein the mites, centipedes, springtails and lice. Latreille,** however, formed the class Myriapoda for the centipedes, the order Thysanura for the springtails and the order Parasita for the lice.

Latreille's ordinal classification is as follows:—

- | | |
|---|----------------------------|
| I.—Apiropoda. Condylopes with more than six legs. | |
| 1. Class. Crustacea. | |
| 2. " Arachnides. | |
| 3. " Myriapoda. | |
| II.—Hexapoda. Condylopes with six legs. | |
| 4. Class. Insecta. | |
| A.—Insects without wings. | |
| a. Without metamorphosis. | |
| * With mandibulate organs. | 1. Order. Thysanura. |
| ** With suctorial mouths. | 2. " Parasita. |
| b. With perfect metamorphosis. | 3. " Siphanaptera. |
| B.—Insects with wings. | |
| a. Elytroptera. The anterior wing covers the posterior like a sheath. | |
| * Mandibulate mouth. Cases horny. | |
| Perfect metamorphosis | 4. " Coleoptera. |
| Cases horny, imperfect metamorphosis. | 5. " Dermaptera the genus. |
| Cases coriaceous. Imperfect metamorphosis. | 6. " Orthoptera. |
| ** Suctorial mouth. | 7. " Hemiptera. |
| b. Gymnoptera. Wings alike. | |
| * Four wings. | |

*It will be recalled that Aristotle separated the Crustacea from the insects as a separate class (Malacostraca).

**Leach first used the term Myriapoda for centipedes and millipedes.

† Mandibulate oral organs at least distinct mandibles.			
Wings with reticulated nervures.	8.	"	Neuroptera.
Wings with ramose nervures.	9.	"	Hymenoptera.
†† Suctorial mouth. Mandibles abortive.	10.	"	Lepidoptera.
** Two wings.			
† Two distorted moveable processes on the prothorax.	11.	"	Strepsiptera.
†† Poisers behind the wings.	12.	"	Diptera.

Kirby and Spence's Classification (*Introduction*) is as follows:—

- I.—Insects with mandibles. Mandibulata.
1. Order. Coleoptera (like Linnaeus and Latreille. Eleutherata, Fab.).
 2. " Strepsiptera, Kirb. (Rhipiptera, Latr.)
 3. " Dermaptera, Leach (Family Forficula, Latr.).
 4. " Orthoptera (like Latreille, but without Forficula).
 5. " Neuroptera (like Linnaeus and Latreille, but without the Trichoptera).
 6. " Hymenoptera (like Linnaeus and Latreille).
- II.—Insects with suctorial mouths. Haustellata.
7. Order. Hemiptera (like Linnaeus and Latreille).
 8. " Trichoptera (Leach).
 9. " Lepidoptera (Linnaeus and Latreille).
 10. " Diptera (like Linnaeus and Latreille).
 11. " Aphaniptera, Kirby (Suctoria, Latr.).
 12. " Aptera (all apterous insects breathing through tracheae).
- * Hexapoda (Ametabola, Leach, Thysanura, Parasita Latr.).
- ** Octopoda (Arachnides, Tracheales, Latr.).
- *** Polypoda (Myriapoda, Leach, Latr.).

We will note that in the Aptera are included the hexapod spring-tails and lice, the octopod mites, and the polypod centipedes.

McLeay's Classification (*Horae Entomologicae*, 1821) is as follows:—

ANNULOSA:

1. Crustacea (according to Latreille).
2. Arachnida (according to Latreille).
3. Ametabola (Myriapoda, Thysanura, Parasita of Latreille).
4. Haustellata.
5. Mandibulata.

Ptilota.

Mandibulata

Haustellata.

Larvae with feet, pupae obtectae.

Trichoptera

Lepidoptera

(Semblodes, Phryganea, etc.)

Larvae apods, pupae exaratae.

Hymenoptera

Diptera

Larvae varying, pupae free and quiet

Coleoptera

Aptera (Suctoria, Latr.).

Metamorphosis semi-complete, Larvae resembling the imago.

Orthoptera

Hemiptera

(Hemip. Heteroptera, Lat.).

Larvae with six feet, metamorphosis varying.

Neuroptera

Homoptera

(Hemip. Homopt. Latr.).

THE STUDY OF PARASITISM AND NATURAL METHOD OF CONTROL.

From early times students of insect life have observed that sometimes from caterpillars and their chrysalids there emerge insects that are different from them and that often cause their death. According to Silvestri, Aldrovandi (1602) was the first to observe the exit to the larvæ of *Apanteles glomeratus*, which he thought were eggs, from the common cabbage caterpillar. Later, Redi (1668) recorded the same observation, and others on insects of different species.

Valisnieri (1661-1730) was probably the first to discover the real nature of

parasitism. About the nature and work of these parasites he wrote, "If sometimes there are born, (from one insect different ones) they are what I should call false individuals, being born from a different kind of worms which have been deposited there by their mothers, so that they may feed off the real native worm. This is a law ordained in this base world by the Supreme Creator which I have not yet well understood, that the larger always devours the smaller, and is its tyrant, a law which I have constantly observed in all forms of life, winged, four-footed, and aquatic."

Cestoni, a contemporary of Valisnieri, in a letter to him speaks at length about the parasites of *Aphis brassicae*, *Pieris brassicae*, and finally of *Aleyrodes brassicae*. He calls the insects of this latter species first "butterfly atoms" and then "little cabbage sheep" and their parasites, "wolf-mosquito."

Réaumur, about 1735, and De Geer about 1760, published records of many parasitic forms. About the beginning of the 19th century considerable attention was given to the study of insect parasites by several Zoologists, and many records were published. Ratzeburg's great work on "The Ichneumons of Forest Insects," published about 1850, was for a long time the great classic on the subject. During the last part of the 19th century entomologists of many countries made important contributions so that by the end of the century the literature on the subject was quite voluminous.

Professor Trotter tells us that the first person to divine the importance of parasitism and to apply the principle successfully was Boisgiraud of Poitiers in France. About 1840 he freed the poplars in the suburbs of his town of Gypsy Moth by placing there *Calosoma sycophanta*, and he destroyed forficulids in his own garden by using *Staphylinus oleus*.

These successes seem to have inspired the Milanese in 1843 to offer a medal to be given in 1845 to any person who had in the meantime conducted successful experiments in the artificial breeding of carnivorous insects which may be used advantageously to destroy insects injurious to agriculture. To this appeal Antonio Villa responded in 1844 by a pamphlet entitled: "Carnivorous Insects used to destroy Species Injurious to Agriculture," in which are set forth at length the results of successful experiments carried on by him at Desio in the Province of Milan. In these experiments Carabids and Staphylinids were used. Villa's results were criticized by Bassi, Bellani, and Ratzeburg. The latter said that "Carnivorous insects can be applied to the needs of agriculture only by the beneficent hand of nature and that every effort to assist it must be in vain."

Rondani, a few years later in the sixties, made important studies of insect parasites, chiefly dipterous and hymenopterous forms. In his "Account of Parasitic Insects and their Victims" he shows the importance of these insects in agriculture, and gives a table of parasites known as enemies of injurious insects.

In France, Perris and Decaux carried on valuable experimental work with parasites and predaceous insects in the early seventies.

From that time the U.S. have taken the lead, **not only in the study of parasitism but also in economic entomology.**

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THE PEAR PSYLLA IN ONTARIO.

W. A. ROSS, DOMINION ENTOMOLOGICAL LABORATORY, VINELAND STATION.

The following paper is based largely on insectary and orchard investigations which were conducted at the Dominion Entomological Laboratory at Vineland Station, Ontario, in 1917 and 1918. In the insectary the psylla was bred on pear seedlings grown in flower pots and covered with lantern chimneys.

HISTORY AND DISTRIBUTION.

It is believed that the pear psylla (*Psylla pyricola*) was first introduced into North America in 1832 on pear trees imported into Connecticut from Europe. According to Slingerland and Crosby,* the insect is now generally distributed over the Eastern United States as far south as Virginia, and it also occurs in California.

It was first discovered in Canada in 1894 at Freeman, Ont., at which place it was found seriously injuring a block of three hundred Dwarf Duchess pear trees. Since then it has been recorded from other parts of Ontario, from Nova Scotia, and from British Columbia. Professor Lochhead informs me it has never been taken in Quebec.

In British Columbia, according to Mr. R. C. Treherne of the Dominion Entomological Branch, the psylla is present only in the lower Kootenay country where it was first observed in the spring of 1917. As the B.C. form occurs only on apple and as it differs slightly from its Eastern fellow, there is room for doubt, in my mind at least, as to its being *P. pyricola*.

Professor W. H. Brittain, Provincial Entomologist for Nova Scotia, informs me that in that province the pear psylla is injurious in some years and in other years it is very little in evidence.

In Ontario the insect has been taken in the counties bordering Lake Erie and Lake Ontario as far East as Trenton. However, outside of the Niagara and Burlington districts (where it is only too frequently very destructive), it is of comparatively little importance.

Our observations indicate that, in this province at least, the psylla is primarily a pest of the large orchard or of sheltered orchards. For reasons at present not clear to us, conditions in small plantings do not seem to be favorable for its rapid multiplication and in such places it seldom attains destructive proportions.

*Manual of Fruit Insects.
6-E.

NATURE OF INJURY.

The psylla causes injury by extracting with its sucking mouth-parts the sap from the leaves, leaf petioles, fruit stems, and tender wood on which it feeds. On badly infested trees, the continual sapping of the life juices by myriads of insects robs the tree of vitality, dwarfs the fruit, produces brown, dead areas on the leaves (Fig. 14) and, in extreme cases, causes the foliage to drop prematurely. Trees seriously weakened by this pest are especially susceptible to winter injury and in a hard winter like that of 1917-18 readily succumb to low temperatures.

Large quantities of a sweet sticky liquid called honey-dew are excreted by the psyllas, and on attacked trees the foliage, fruit, twigs and branches may be covered with this sticky material and with a sooty fungus which grows in it. (Fig. 15). This coating of honeydew and sooty fungus not only makes the trees and fruit very unsightly but it is very probable that it is also detrimental to the physiological functions of the leaves.

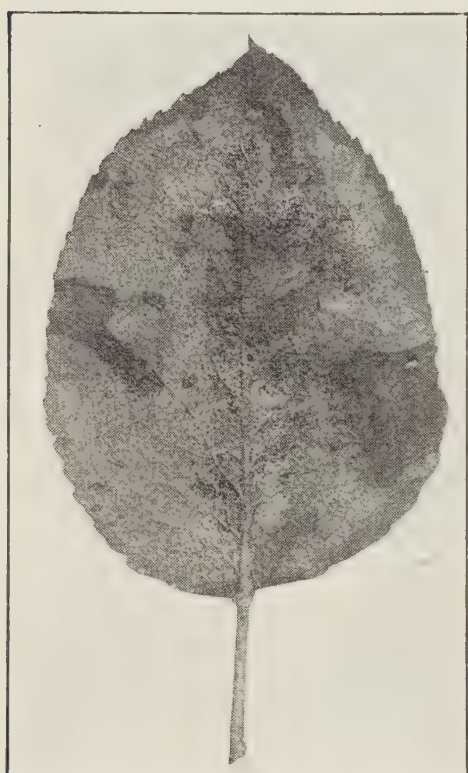


Fig. 14.—Leaf injury caused by pear psylla.



Fig. 15.—Leaves showing honey-dew fungus and nymphs.

LIFE HISTORY.

Summary.

The winter is passed in the adult stage. The adults hibernate under the rough bark on the trunks and main limbs, and under grass, leaves and rubbish near the infested pear trees. In late March or early April the insects leave their winter quarters, congregate on the twigs and fruit spurs and in a short time, provided the weather remains propitious, commence to lay eggs. Oviposition may continue until about the time the petals drop; however, the vast majority of the eggs are laid by the time the fruit buds have burst. The eggs are deposited on the twigs, fruit spurs and smaller branches, chiefly on the under surface. They commence to hatch when the fruit buds are beginning to break, and nearly all have hatched

by the time the petals drop. The period of incubation varies, according to the temperature, from 8 to 32 days, the average being about three weeks. The newly hatched nymphs migrate to the opening buds where they feed chiefly on the petioles and blossom stems. They grow rapidly and after moulting five times reach the adult stage in about one month. This first brood is then succeeded by three other broods, and the life cycle is finally completed in the fall by the appearance of the winter adults—the hibernating forms.

THE EGG.

Description: The egg (Fig. 18) is sub-oval, blunt at the base and pointed at the apex. In colour it is creamy or pale yellowish with orange at the base. In length it varies from .315 mm. to .340 mm.

The egg is attached to leaf or bark by a short stalk projecting from near the basal end, and at the apex there is a long hair-like filament.



Fig. 16.—Showing eggs along midrib of leaf. (Much enlarged.)



Fig. 17.—First generation eggs laid on bark. (Much enlarged.)

Location of Eggs: The overwintering females deposit their eggs on the twigs, fruit spurs and smaller branches, chiefly on the under surface. (Fig. 16). After the buds have burst, belated females may be found laying their eggs on the young leaves.

The eggs of the summer forms are laid principally on the leaves, singly or in clusters, along the midrib (Fig. 17). They also may be found on the leaf petioles and shoots.

Period of Incubation: In the case of first generation eggs, i.e., eggs laid by overwintering females, the period of incubation was determined in 1917 from a study of 21 batches of eggs deposited at various dates from April 14th to June 9th. The average period was about 20 days, the maximum and minimum being respectively 32 and 8 days. The average duration of the egg stage in April was 26 days, in May 19 days, and in early June 11 days. (See Table No. 1).

TABLE No. 1.

Year.	Duration of Incubation of 1st Generation Eggs.				
	Date of Deposition.	Number of Lots.	Maximum Duration.	Minimum Duration.	Average Duration.
1917.....	April 14-22...	8	Days 32	Days 23	Days 26
1917.....	May 2-29.....	9	28	11	19
1917.....	June 3-9.....	4	13	8	11

In experiments with 40 lots of 2nd, 3rd and 4th generation eggs, the average duration of the egg stage proved to be 11½ days in June, 7½ days in July, 10 days in August, and 12½ days in September. (See Table No. 2).

TABLE No. 2.

Year.	Duration of Incubation of 2nd, 3rd and 4th Generation Eggs.					
	Date of Deposition.	Generation.	Number of Lots.	Maximum Duration.	Minimum Duration.	Average Duration.
1917.....	June 19-29..	2nd	5	Days 15	Days. 8	Days 11
1918.....	June 8-12..	2nd	3	14	10	12
Average	June 8-29..	2nd	8	15	8	11½
1917.....	July 3-31..	2nd, 3rd	10	12	4	7
1918.....	July 9-26..	2nd, 3rd	5	10	6	8
Average	July 3-31..	2nd, 3rd	15	12	4	7½
1917.....	Aug. 3-27..	2nd, 3rd	10	15	6	10
1918.....	Aug. 15-26..	3rd, 4th	3	11	9	10
Average	Aug. 3-27..	2nd, 3rd, 4th	13	15	6	10
1917.....	Sept. 5.....	3rd	1	14	12	13
1918.....	Sept. 1-17..	4th	3	23	6	12
Average	Sept. 1-17..	3rd, 4th	4	23	6	12½

THE NYMPH.

Description: 1st instar. Oval and very flat in shape. Antennae translucent with dusky tips. Eyes reddish. Head pale yellow with a narrow median line of cream. Thorax pale yellow. Abdomen yellowish with lunule of deep orange. Legs translucent, dusky tarsi. Length .36 mm.

2nd instar. Similar to the 1st. Length .54 mm.

3rd instar. Similar to the 1st. Wing-pads apparent. Length .72 mm. to 8 mm.

4th instar. Similar to the 5th. Length .9 mm. to 1.08 mm.

5th instar. Oval and very flat in shape. Antennae light brown with dark brown tips. Eyes reddish. Head dark brown with a longitudinal median line of creamy grey. Thorax creamy grey blotched with red, with dark brown markings arranged as in illustration; wing-pads dark brown. Abdomen: anterior third creamy grey with three dark brown transverse bands interrupted in the middle, posterior two-thirds dark brown. Length 1.44 to 1.62 mm. (Fig. 18).

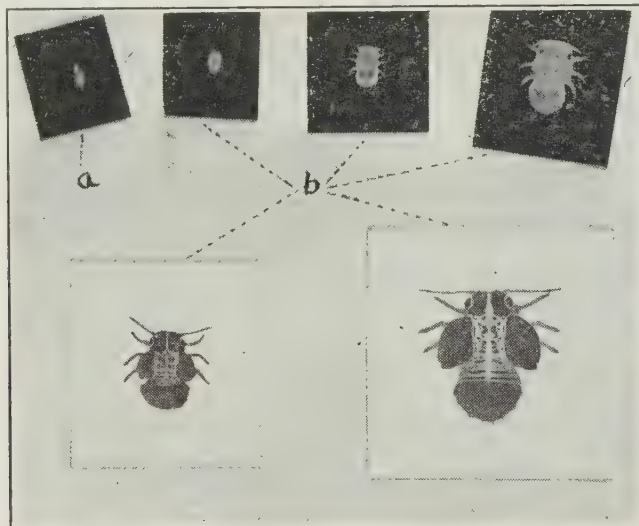


Fig. 18.—“a” Egg; “b” Various stages of psylla nymphs. (All much enlarged.)

Habits: Upon hatching out in the spring, the nymphs of the first generation migrate to the opening buds where they feed principally on the leaf petioles and blossom stems. The nymphs of the later generations are found chiefly on the upper and under side of the foliage. They also occur to some extent on the tender wood, especially in the fall.

The nymphs secrete copious quantities of honeydew, and, as a general rule, are enveloped by this liquid. According to our observations, the nymphs of the first generation secrete less honeydew than those of the succeeding broods.

Molting: The nymph molts five times, attaining the adult stage after the fifth molt. In experiments with 39 individuals the average duration of each instar was: 1st instar 6 days; 2nd instar 6 days; 3rd instar 6 days; 4th instar 6 days; 5th instar 8 days.

Length of Nymphal Life: In experiments conducted with 192 individuals of the 1st generation, the duration of the nymphal stage varied from 20 to 35 days with an average of 28 days.

Further data on the duration of the nymphal stage of summer and winter forms are presented in Tables No. 3 and 4.

TABLE No. 3.

Year.	Length of Nymphal Life of Summer Forms.					
	Date of Hatching.	Generation.	Number of Individuals.	Duration.		
				Max.	Min.	Aver.
1917.....	May 11-31...	1st	71	days 35	days 24	days 30
1917.....	June 5-30...	1st, 2nd	40	24	19	21
1918.....	June 18-24...	2nd	10	27	21	25½
Average	June 5-30...	1st, 2nd	50	27	19	23
1917.....	July 3-30...	2nd	143	25	11	17
1918.....	July 26-29...	3rd	8	27	12	22½
Average	July 3-30...	2nd, 3rd	151	27	11	20
1917.....	Aug. 4-5....	2nd	11	27	19	23

TABLE No. 4.

Year.	Length of Nymphal Life of Overwintering Forms.					
	Date of Hatching.	Generation.	Number of Individuals.	Duration.		
				Max.	Min.	Aver.
1917.....	Aug. 19.....	2nd	6	days 26	days 21	days 23½
1917.....	Aug. 1-30...	3rd	22	55	29	38
1918.....	Aug. 26-31...	4th	11	51	30	43
Average	Aug. 1-31...	3rd, 4th	33	55	29	40½
1917.....	Sept. 1-8....	3rd	5	61	51	58

THE SUMMER ADULT.

The summer adult commences to appear a short time after the pear blossoms fall, and from then until early autumn it is always present.

Description: The adult (Fig. 18) is a tiny four-winged insect bearing a striking resemblance to a Cicada in miniature. The transparent wings slope roof-like over the abdomen, and the legs are adapted for jumping. The differences in the external appearance of the male and female are shown in Fig. 21. The female is about 2 mm. in length and the male about 1.8 mm.

Colour notes: Predominating colour red. Antennae yellowish brown; 1, 11 reddish; tips black. Head crimson, mesal suture and a spot on either side black. Eyes dark red. Thorax crimson with black markings. Abdomen crimson with five black transverse bands. Legs pale yellowish brown. Front wings faintly clouded with yellow, veins pale yellowish brown, hind wings transparent.

Mating Habits: The female mates several times, and the male is polygamous.

In copulating, the male gets along side the female on her right side, lifts his left wing to some extent, grasps the upper genital plate with his claspers and inserts the penis.

Preoviposition Period of Female: The average preoviposition period of confined females was 4 days in 1917 and 6 days in 1918, the minimum and maximum for both seasons being 3 days and 9 days respectively.

Reproductive Capacity of Female: According to our observations, one female may lay from 1 to 61 eggs per day.



Fig. 19.—Adult pear psylla.
(Much enlarged.)

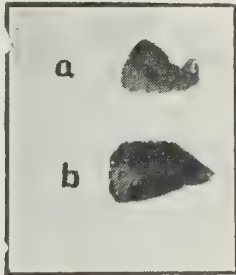


Fig. 20.—Abdomen of “a” male, and “b” female pear psylla. (Much enlarged.)

In our experiments the maximum production per insect was 695 eggs and the minimum 65 eggs. (See Table No. 5).

TABLE No. 5.

Showing Comparative Reproductive Capacity of Summer and Overwintering Females.

Year.	Generation (Summer).	Number of Couples used.	Egg Laying Period.	Reproductive Capacity of Female.		
				Max.	Min.	Aver.
1917.....	1st	7	June 19—Aug. 14.	Eggs 671	Eggs 427	Eggs 540
1918.....	1st	5	June 7—July 25.	695	459	625
Average	1st	12	June 7—Aug. 14.	695	427	582
1917.....	2nd	10	July 23—Sept. 4.	684	65	343
1918.....	2nd	5	July 18—Sept.10.	636	258	456
Average	2nd	15	July 18—Sept.10.	684	65	399
1918.....	3rd	5	Aug. 15—Oct. 5.	285	86	190
1917.....	Winter	4	April12—June 13.	448	121	279

Reproductive Period of Female: The average reproductive period of 17 females in 1917 was about 30 days and in 1918 with 15 individuals it was 36 days, the maximum and minimum for both seasons being respectively 63 days and 16 days.

Length of Adult Life: Our observations indicate that the average length of life of the male is about 5 weeks and that of the female a few days longer.

THE OVERWINTERING ADULT.

Description: The overwintering adult can be readily distinguished from the summer adult by its larger size, darker coloration, and by its transparent front wings. The predominating colour of this form is black or dark brown. The female is about 2.43 mm. in length and the male about 2.16 mm.

Habits: In September, with the coming of autumn, the overwintering forms commence to appear, and their production is continued until the close of the season. They feed to some extent but do not mate or lay eggs. During the winter they hibernate chiefly beneath the rough bark of the trunks and main limbs and also under grass, leaves and rubbish near the infested pear trees. In late March or early April, with the coming of warmer weather, they leave their winter quarters, congregate on the twigs and fruit spurs chiefly in the lower central portions of the trees, and in a short time, provided the weather remains propitious, they mate and commence to lay eggs. They die off rapidly in spring, and by the time the fruit buds have burst comparatively few of them are left on the trees. A few stragglers survive until after the blossoms have fallen.

Egg Laying Period: The females usually commence to oviposit early in April, and, by the time the fruit buds have burst, most of the eggs have been laid. Belated individuals continue to oviposit up to the falling of the petals in late May or early June.

Reproductive Capacity of Female: In an experiment with 4 couples, the egg production per female varied from 121 eggs to 448 eggs, with an average of 279 eggs. Each female laid from 1 egg to 48 eggs per day.

NUMBER OF GENERATIONS.

In our insectary studies we obtained a maximum of four from the earliest laid eggs and a minimum of two generations from the last laid eggs. This would indicate, at least theoretically, that in the Niagara district there are two complete generations, a very large third generation and a small fourth generation.

CONTROL.

Natural Control.

Several species of insects, notably ladybird beetles, attack the psylla and check its rapid multiplication to some extent. However, undoubtedly the most important control agency afforded by nature is the weather. Our observations indicate that protracted periods of cold, wet weather in spring may be disastrous to the eggs and newly hatched young. Hodgkiss records the destruction of hibernating forms in spring by ice storms, heavy washing rains, and sudden changes in temperature. Professor Brittain, in a letter dated September 23rd 1918, reports a great diminution of the psylla in Nova Scotia, which he thinks was caused by the hard winter of 1917-18. Long spells of hot, dry weather also appear to be fatal to many psyllas chiefly, we think, because such weather renders much of the foliage hard and dry and therefore unsuitable for the development of nymphs.

ARTIFICIAL CONTROL.

The fact that a combination of the delayed dormant spray of lime sulphur and the post blossom application of nicotine extract will control the psylla was demonstrated this year in a twelve-acre orchard of Bartlett, Duchess, Anjou and Flemish Beauty pears near Beamsville. This orchard had been subject to serious psylla injury for a number of years and last year it was very heavily infested. This spring myriads of hibernating adults were found in it on the twigs and branches and a very large deposition of eggs was made.

The dormant spray of lime sulphur (winter strength) was delayed until shortly before the blossoms opened (Fig. 21) and it was then applied with great thoroughness, care being taken to coat every part of the tree. At this stage, the



Fig. 21.—Showing stage of fruit bud development at the time of first application.



Fig. 22.—Blossoms fallen; time of second application.

vast majority of the eggs had been deposited and many of the earliest laid eggs had hatched. After the blossoms fell (Fig. 22), the trees were again thoroughly sprayed with lime sulphur and arsenate of lead (for scab and codling worm) and Black Leaf 40, $\frac{3}{4}$ pt. to 80 gals. of spray mixture, the latter of course being added to destroy the psylla nymphs. At this stage an odd winter adult and a very few belated eggs were still present on the trees.

Results: About two weeks after the delayed dormant spray was applied, an examination of the orchard was made and it was observed that although the vast bulk of the eggs and recently hatched nymphs had been destroyed, too many nymphs were still present. In other words, we found that the spray for the eggs would not by itself give us satisfactory control. The orchard was frequently inspected after the post blossom application and up to the time the Flemish Beauty pears were picked the trees were found to be practically free of psylla. Early in July, we examined trees situated in different parts of the orchard and on as much of the tree as could be conveniently looked over, we found from two

to nine psyllas per tree. At the end of August, the orchard was still practically free of psylla, the foliage was abundant and healthy green in colour, whereas in our check orchard the trees were heavily infested, all the foliage was spotted with brown and some of it was dead. The last examination of the treated orchard was made in late October and rather to our surprise, we found that the insect had increased to quite an extent and that the winter adults were fairly common.

Conclusions: Our results this year show that although the two applications will not eradicate the psylla, they will reduce it to insignificant proportions. To obtain absolute control, it seems to us in the light of our present knowledge, that it would be necessary to spray with nicotine extract two to three weeks after the calyx application in order to destroy the nymphs derived from belated eggs.

PROF. PARROTT: Pear Psylla is next to Blight the worst pest we have to contend with in the upkeep of our pear plantings, and the experience of Mr. Ross in the control of the insect resembles a great many of our experiences. Control varies with seasonal conditions, and the numbers of females that hang over to take part in the spring oviposition. It takes two sprays to give good commercial control. A great many experiments have been carried on both by the Station and by spraying experts and some years results have been almost perfect and in other years or in other experiments the results have not been so satisfactory.

MR. ROSS: I should like to ask Prof. Parrott if he can explain why the Pear Psylla never seems to be troublesome in small plantings.

PROF. PARROTT: I cannot explain it any more than I can understand why roadside trees are so free from it. I think it likes sheltered, and undisturbed areas in an orchard. As to what influences it I do not know.

CONTROL OF THE APPLE MAGGOT.

L. CAESAR AND W. A. ROSS.

A full account of all our tests of control measures against the Apple Maggot would require too long an article; hence we shall give only the outstanding points of interest and value.

In 1911 and 1912 the destruction of the fallen fruit was tested in a small, isolated, badly infested orchard, and gave fairly satisfactory results, but the labor involved was so great that it was seen that not many fruit growers could or would adopt the method and in many cases live stock could not be used for the purpose.

In 1913 we tried sweetened poison sprays on individual trees or groups of trees in the orchards and found that though the number of infested fruits compared with those on some of the checks was lessened yet the results were not satisfactory.

In 1914 believing that a larger continuous area should be sprayed we gave two applications of arsenate of lead and molasses to a 25 acre orchard at Mountain and left a narrow strip of about 2 acres along the east side as a check. Both check and sprayed portion had been badly infested the previous year and much of the fruit had been left on the ground.

RESULT: In the whole orchard, after an examination in September by both writers, less than a dozen infested apples were found. This no doubt would look like a case of natural control and in no way due to spraying; but such was not the case, because examination of the trees soon after the first application and again during the second showed that, though the flies were not abundant yet

sufficient were present to have punctured numerous apples even though the percentage thus injured might not have been high. Moreover, the season was very dry and the owner had sprayed the whole orchard, check and all, very heavily for Codling Moth. Much of this spray was still on the check trees at the time of the first application to the rest of the orchard. This together with the narrow width of the check strip and its closeness to the sprayed trees was sufficient to account for the destruction of the flies on the check.

In 1915 we sprayed a small orchard in Simcoe village, near which were other infested trees. The season was wet and seven applications were given, but in spite of these approximately 60 per cent. of the Tolmans, 20 per cent. of the Snows and 15 per cent. of the Spies were punctured. These results showed that one could not hope to control the pest by spraying in a town without treating all trees for many rods on every side; especially would this be true if there were high winds to help in the dispersal of the insects.

We also sprayed in 1915 all of a small, isolated orchard at Villa Nova, which had been badly infested the previous year and most of the fruit of which had been left on the ground.

RESULT: Though the crop was very light, thus making it harder to protect, and though only two applications were given, which certainly were not sufficient for so wet a season, approximately only 12 per cent. of the fruit was infested; which was very encouraging.

In 1916 we sprayed with the sweetened poison two adjoining orchards on one side of the road at Lyn, near Brockville, and left another orchard about twenty-five rods away as a check. There was a hedge and also a house and barn situated between this orchard and the sprayed ones. On the opposite side of the road we sprayed a third orchard and left a check adjoining it and in the same direction as the other check. Two sprays were given. Many flies were seen in the sprayed orchards after the first spray and some during it.

RESULT: The two first-mentioned orchards had 95 per cent. or more of the fruit, including such susceptible varieties as Tolman, Wealthy and Snow, free from punctures, though most of the fruit the previous year had been so badly infested it was left on the ground to rot. The orchard on the opposite side of the road was not so clean, some of the Tolmans having as high as 25 per cent. of punctured apples, though most of these apples had only one or two punctures. The check orchards on both sides of the road showed that the Tolman, Snow, Wealthy and St. Lawrence, had from 75 per cent. to 95 per cent. of punctured apples, most of the apples having many punctures.

In 1917 we sprayed these same three orchards again, and to protect the one in which the results had not been quite satisfactory we sprayed a buffer area of about fifteen rods between it and the check.

RESULT: No punctures were found even on Snow, Alexander or Tolman, in the orchard farthest from the check. In the second orchard on this side of the road punctures were found on only one tree in the extreme north corner. The third orchard, the one on which there had been 25 per cent. of punctured Tolmans the previous year, was this year almost totally free from punctures, less than two score being found in the whole orchard. In the check orchards Snow, Wealthy and St. Lawrence and a heavily laden wild apple tree had almost every apple punctured. There was practically no crop on the Tolmans in the check orchard this year.

In this same year (1917) we also sprayed a small, old orchard north of Trenton,

which had been badly infested the previous year. The results here, too, were very satisfactory, only a very few apples being punctured, and nearly all of these on trees situated at some distance from the main orchard and near two trees that had received only one partial spraying.

In the fall of 1917 we found the worst infested apple orchard that we had yet seen. It consisted of nearly three hundred trees, including Snow, Wealthy, Tolman, Belleflower, Ben Davis and half a dozen other varieties. There had been a good crop, which if clean should have been worth \$1,000 at least, but every apple that we could find on any variety was punctured by the insect and nearly all of them so badly punctured as to be conspicuously deformed. We therefore decided to make this orchard our final test. In 1918 it was given the regular sprayings for Apple Scab and Codling Moth, and then two extra fairly heavy applications for the Apple Maggot, the first of these being on the 12th and 13th of July and the next the first week in August. Orchards close by were sprayed to act as buffer orchards.

RESULTS: The whole orchard was beautifully free from Scab and Codling Moth, and the effect upon the Apple Maggot was a clear demonstration of the power of poison sprays to control this pest; for instead of 100 per cent. of punctured fruit there was less than 5 per cent. Apple buyers, fruit growers and everybody who visited the orchard this year and had seen it last year were convinced that our method was as nearly perfect as anyone could hope for. There is no doubt at all that without the spraying the crop would have been ruined by the Apple Maggot, for one of the writers visited the orchard every few days from the time the flies began to emerge up to the end of July, and saw that they were very abundant. It was no trouble to capture twenty or more on a single tree in an hour even without a net. Moreover, a neighbouring orchard used as a check but so situated as not to endanger our test orchard was also visited frequently to see how many flies were present. (This orchard had not been badly infested the previous year and the fruit on it had been sold.) Eight or ten flies was the largest number seen on any one day; yet at the end of the season the Snows, Wealthy, Ben Davis and Phoenix in this orchard had 75 per cent. of the fruit infested, in fact so bad was the fruit that the chief apple buyer of the district, who had bought the fruit on the test orchard, absolutely refused to buy the crop on the check, declaring that it was worthless. It may be of value to note that though so many flies were seen in the sprayed orchard yet at no time were they observed copulating or ovipositing, whereas in the check orchard oviposition was observed on several occasions and egg punctures could be readily found before the end of July. No egg punctures were visible in the sprayed orchard at this date or at the time of the second spraying, all having evidently been made much later.

CONCLUSIONS.

The results of our field tests conducted in various parts of Ontario and spread over five consecutive years and corroborated by laboratory tests justify us, we believe, in stating confidently that the Apple Maggot can be successfully controlled in apple orchards by spraying.

The first application should be given just before or as the adults begin to emerge, which in the south-western part of the Province is about the last week in June, and in the parts with a somewhat colder climate such as Guelph, Stratford and the district all along Lake Ontario, about the first week of July, and in the

still colder parts such as Ottawa and the St. Lawrence River valley about the second week in July.

The second application should be made when the first has begun to disappear or usually in from two to three weeks. In wet seasons like the summer of 1915, a third application about ten days after the second will be necessary. Two years should almost completely destroy the insect in any orchard provided that infested orchards are not situated close by. In such case every effort should be made to have these treated also.

In all orchards every tree whether bearing fruit or not should be sprayed, because the adults often frequent such trees until egg laying begins.

As to the mixture to use, in 1914, 1915, and 1916 we used molasses along with arsenate of lead, but in 1917 and 1918 omitted the molasses and found that the results were equally good. This is fortunate, for molasses tends to cause the spray to wash off more quickly, sometimes burns the foliage, adds to the cost, and may cause complaints from beekeepers, though these complaints are not justified. We therefore recommend the use of from two to three pounds of the paste form or one to one and a half pounds of the powder form of arsenate of lead to forty gallons of water. We believe that heavy rather than light applications of the mixture should be made, especially if only two are given, because adults continue to emerge for a period of six weeks or more, and so the poison must remain on the trees to kill them before they can lay their eggs. Heavy applications remain on longer than light.

OUR GARDEN SLUGS.

GEO. MAHEUX, QUEBEC.

It is only during about the past thirty years that the Mollusks of the Province of Quebec have attracted the attention of naturalists and have been the object of their studies. As long as they remained inoffensive, or nearly so, they were objects of interest only to amateurs, on account of their strange forms, some presenting the richest of garments, of admirable color and composition, while others are of a viscous and almost repulsive nakedness. The day these *Mollusca Gasteropoda* came to feed in our vegetable gardens their economical stature changed hastily and the extent of their havoc soon necessitated the interference of zoologists. Of course, the first thing was to acquaint oneself with the species composing this branch of invertebrates; specialists devoted themselves to this study and systematic treatises were soon published; and from this departure, experimentalists endeavored to discover an efficient remedy against these new ravagers.

In 1890, very few text-books bearing on this subject were in existence, except, perhaps, the Manual of Conchology of Tryon, then published by Mr. Pilsbury, of Philadelphia, and a few other works of smaller importance. The following year (1891) our great Canadian naturalist, Abbé Provancher, published a new part of his Canadian Fauna, an illustrated book of over 150 pages, under the title of: "Les Mollusques de la Province de Quebec," Part I; Pteropoda, Cephalopoda and Gasteropoda. Provancher had been, for a long time, collecting specimens of these animals. From his book entitled: "Voyage aux Antilles," we can see that he was taking a great interest in this study and that he then made a large gathering of remarkable shells.

In our days, conchologists are rather numerous and with them the science of mollusks has enormously advanced. However, those who are interested in economic zoology, in the relations of beasts with cultivated plants particularly, still have much to learn as regards their habits, the noxiousness and the destructive work of our garden slugs.

The summer of 1918 seems to have been very propitious to observers and experimentalists. Slugs have increased in number in 12 months and their destructive work has developed. Many "war gardens" in the vicinity of Quebec have had to stand the attacks of these destroyers, usually unknown to average people, in this capacity at least. We might say that we have very often seen considerable damage; amateur gardeners were so much the more puzzled because they could not see the culprit at work. The ordinary species found in our gardens are: *Limax campestris*, *L. agrestis*, *L. maximus*.

The three of them seem to operate in the same manner. Everywhere they have injured several kinds of vegetables, never all at a time but rather one after the other. Is this a question of inclination, of caprice, of instinct or hazard? All hypotheses are allowed, and each of these agents probably has some influence upon the work, the choice of the beast.

The following is the order followed by the slugs and the vegetables they successively infested:

1. *Beans*.—The first vegetable infested everywhere, the slug only changing its food when this first plant has become inadequate.

2. *Peas*.—The relationship between beans and peas no doubt explains this transition and the appetite of the ravager.

3. *Turnips*.—After leaving peas, slugs spend most of the summer on turnip leaves, into which they cut large holes, with different contours.

4. *Cabbages and Cauliflowers*.—These crucifers equally attract slugs. At first, they are only seen on turnips, then upon all of them simultaneously.

5. *Pumpkins*.—Towards the end of the season, when the pumpkin has assumed a good round shape and is swelled with juice, the slug penetrates into the pulp and bores holes often as much as two inches deep.

Authors have noted the preference of slugs for cucumbers. For one reason or another, their presence upon this plant has nowhere been noticed by us, although, in most cases, the latter were close neighbors to turnips thoroughly infested by slugs.

The places they like best are gardens with a damp soil, naturally wet or kept in that condition artificially.

The slug does not only eat the plants at night; the weather seems to direct its line of conduct. We have seen slugs at work at night, after its coolness began to be felt; this is evidently the most common habit. The darkness of the night, however, is not indispensable to the coming out of these animals. They willingly show up when it is raining; if the sky is cloudy and the humidity of the air high, they will sometimes be seen upon the leaves. Their presence can even be noticed in the daytime, when the sun is shining brightly, on parts of vegetables that are well shaded and where the moisture will easily be retained, as, for instance, between rows of peas that have grown high and thick. It seems that the only factor essential to their activity is moisture and the absence of a bright light. Moreover, this is very easy to ascertain by a simple experiment; if vegetables are watered at the close of day, they come out almost immediately and much earlier than usual.

The damage done by the slug varies with the various plants on which it feeds, according to their age and consistency. Amongst the vegetables above mentioned, it is obvious that the youngest are the most badly infested.

Thus, beans had only grown three or four leaves when slugs started eating them up; after 8 or 10 days a dried stem was all that was left. It resulted that 50 per cent. of the plants did not bear any crop and 25 per cent. of the remainder only yielded one-third or one-half of the normal crop; one-fourth only was left intact or at least strong enough to bloom normally and yield accordingly. In a field where there were several varieties, the Burpee beans were completely cut down.

The crop of peas has only suffered a small diminution. When slugs launched an attack upon their stems, they were already nearing ripeness and had attained a remarkable degree of resistance. There has been a loss of a few leaves and pods, or a total loss of about 2 per cent.

Of the crucifers, cauliflowers are the only ones that seem to have been injured, and then only when the slugs were successful in penetrating into the fruit. Finally, in the case of pumpkins, there still remained the expedient of removing the injured part, the sides of the hole bored by the slug.

Control.—The following substances were used: Paris green, arsenate of lead, Bordeaux mixture, quicklime (powder).

The first two insecticides only gave poor results; they did not seem to diminish the number of slugs in an appreciable degree.

Bordeaux mixture containing 6 lbs. of lime to 4 lbs. of bluestone makes slugs uneasy, kills a few of them slowly, but does not constitute an efficient means of destruction.

Quicklime has done wonderfully well. It has been dusted on the infested plants, in the following way:

1. At night, before slugs appear; in order that the success be complete, it is important that all issues leading to the plant be closed to the slug, which is not always an easy task.

2. At night, when the slugs are feeding upon the foliage. In this way the best results are achieved. If we can apply lime to come into close contact with the skin of the slug, the latter will die rapidly. The following morning, their inert bodies, reduced by one-half, of a dark green color, are still sticking to the leaves.

3. Applied during the day, lime loses its efficiency, because the coolness of the night lessens its strength.

As a rule, dusted lime retains its destructive power, in whole or in part, as long as it does not rain; it is excellent in a fresh condition. A small particle of lime is then sufficient to kill a slug. We have watched the doings of 12 slugs placed on a board and surrounded by a wall of lime, one-quarter of an inch in height. Not a single one was successful in getting over the obstacle; as soon as they came into contact with lime, they twisted convulsively and died in the space of 2 to 60 minutes, according as the injured part was more or less great or sensible. Secretions very abundant at first, soon become nil, coinciding with the complete absence of movement.

It would be very difficult to find a more energetic remedy and of easier application. By repeating the dusting of lime, particularly at night, these destroyers will soon be controlled.

Several other remedies are, however, to be found. In reading I happened to come across several of them, a few of which are herewith described to bring this study to an end, and thinking that it might interest you.

In his book, "Recettes et Procédés," Tissandier recommends the following mixture, spread on the ground.

Caustic soda	40 gr.
Quicklime	960 gr.

Bellet in "Les meilleures Recettes" say that in order to destroy slugs, it is sufficient to spray the spots visited by these parasites, with a solution of 600 grammes of carbonate of soda dissolved in one litre of water.

Mr. Anadyx surrounds the stem of vegetables with a border of old newspapers and slugs disappear. ("La Nature," 1904.)

Mr. Noel, of the Rouen laboratory of agricultural entomology, after several tests, states that the most efficient destructive agent is copper arsenite. He prepares it in the following manner: He mixes 1 kilogram of coarse wheat bran, 100 grammes of copper arsenite and about 250 cubic centimetres of water. When the whole has assumed the form of a consistent paste, little balls are made and distributed on the ground where slugs are expected to be found. After one week, they will practically all have disappeared. (La Nature, 1910.)

In order to attract slugs, Mr. Hardys covers cabbage leaves with rancid butter and places them here and there in the garden; the next morning they are thoroughly covered with slugs which are then easily destroyed.

Finally, if the chickens are allowed in the garden, they can render valuable services, but they must not be given dead slugs as food; they should be burnt and buried deep.

We did not have the necessary time to try all these remedies; but we place them before you for consideration. No doubt several experimentalists in this assembly will want to give them a trial. The result of their experiments will certainly be both useful and interesting.

THE ENTOMOLOGICAL RECORD, 1918.

ARTHUR GIBSON, ENTOMOLOGICAL BRANCH, DEPARTMENT OF
AGRICULTURE, OTTAWA.

The Record for 1918, as will be seen, presents data regarding distribution chiefly in the orders Lepidoptera, Coleoptera, and Diptera. No extensive collections, so far as I know, have recently been made in the less known orders.

During 1918 the insects collected by members of the Canadian Arctic Expedition during the years 1913-1916, have been worked over by various specialists; and it is hoped the results of these studies will soon be available in published form. These reports will make a valuable addition to our knowledge of the insects of Arctic Canada.

As in other years, students of insects in Canada have received much assistance from various specialists, chiefly those resident in the United States. The list of these specialists is every year assuming greater length, and it therefore becomes difficult to specially mention any of our good friends to the South. All who have assisted us in our systematic studies have our grateful thanks.

LITERATURE.

Among the books, memoirs, etc., which have appeared during 1918, of interest to Canadian students, the following may be mentioned:

BARNES, W., and McDUNNOUGH, J. Life-histories of North American Species of the genus *Catocala*; Bull. Amer. Mus. Nat. Hist., XXXVIII, Art. V, pp. 147-177, March 21, 1918. This paper, which was published in anticipation of the "Illustrations of the North American Species of the Genus *Catocala*," will be valued by those doing life-history work. The ova of a number of the species described were received from Canada, and for this reason the paper is of much interest to our workers.

BARNES, W., and McDUNNOUGH, J. Illustrations of the North American Species of the Genus *Catocala*, by Wm. Beutenmuller, with additional Plates and Text. Memoirs of the Amer. Mus. Nat. History, New Series, Vol. III, Part I, October, 1918. This most excellent memoir was received with much pleasure. We had long known that Mr. Beutenmuller had contemplated such a work and it was fortunate that Messrs. Barnes and McDunnough had his manuscript and some of the plates before them. Pages 1 to 47 are given up to the text. Under each species references to the literature are given, as well as notes on the synonymy and distribution. Under each section and group structural and life-history notes are given. The plates are excellent. I to IX and part of X illustrate adults. Nineteen larval heads are shown on plate X. Plates XI to XIV illustrate mature larvæ. On plate XV there are 25 further figures of head capsuls and 16 drawings of segments. Plates XVI and XVII also show segments. Genetalic drawings are reproduced on plates XVIII to XXII. Plates I to XVII are in colours. Lepidopterists generally will welcome the appearance of this memoir. It is indeed an important contribution.

BARNES, W., and McDUNNOUGH, J. H. Contributions to the Natural History of the Lepidoptera of North America, Vol. IV, No. 2—Notes and New Species. This number of the "Contributions," pp. 61-208, plates XI to XXV, is a valuable

addition to the literature. Four new species are described from Canada and one new variety. There is a decided improvement in the plates which accompany the number.

CASEY, THOS. L. *Memoirs on the Coleoptera*, VIII, issued Nov. 12, 1918. The New Era Printing Co., Lancaster, Pa. This large memoir of 427 pages is the result of studies of certain groups, the species in which are closely related. It is divided as follows: I—A Review of the North American Bembidiinae (pp. 1-223); II—Studies among some of the American Amarinae and Pterostichinae (pp. 224-293); III—Observations on the American Pogoninae, including Trechus (pp. 394-412); IV—Miscellaneous Notes and Corrections (413-416). In the Memoir, 26 new species are described from Canada, all from British Columbia, excepting one from Ontario. In addition a number of Canadian records of previously known species are included.

COMSTOCK, J. H. *The Wings of Insects*. The Comstock Publishing Co., pp. xviii-423, 9 plates, 427 figs. This important publication is one which has been well received by entomologists generally. Space here forbids us referring at any length to this work. I would refer the reader to a review of the book which was published in the February, 1919, issue of *The Canadian Entomologist*. The price is \$3.75.

FELT, EPHRAIM PORTER. *Key to American Insect Galls*. New York State Museum, Bulletin No. 200. This a most valuable publication of 310 pages, freely illustrated with good text drawings, in addition to which there are sixteen half-tone plates. Entomologists generally will, indeed, be grateful to Dr. Felt for completing this very useful work. With this publication there is an excellent opportunity for Canadian students to add to the known knowledge of these interesting insects.

LOCHHEAD, WILLIAM. *Class Book of Economic Entomology*, with special reference to the economic insects of the Northern United States and Canada. Philadelphia, P. Blakiston's Son & Co., 436 pp., 257 illustrations; price \$2.50. This new book on economic entomology will certainly find a useful place among economic workers. The descriptions are concise and to the point, the illustrations well chosen and the printing excellent. Part I discusses the structure, growth and economics of insects; Part II the identification of insects injurious to farm, garden and orchard crops, etc., Part III, the classification and description of common insects; Part IV, the control of injurious insects.

LUTZ, FRANK E. *Field Book of Insects*. G. P. Putnam's Sons, New York and London; with about 800 illustrations, many in colour. This field book of a size to fit the pocket is full of useful information. Following introductory remarks, pages 9 to 27 discuss collecting and preserving insects. Then follow chapters on the various orders, under each of which concise information is presented. The volume is one of 509 pages, freely illustrated, many of the figures being coloured.

PERTIT, R. H. and McDANIEL, EUGENIA. *Key to Orthoptera of Michigan with Annotations*. Special Bull. No. 83, Mich. Agric. College, Jan., 1918. This publication of 48 pages will prove of interest to collectors and students in Canada. In addition to a key to the families of Michigan Orthoptera, it also contains generic and specific keys. Useful illustrations are included.

PIERS, HARRY. *The Orthoptera (Cockroaches, Locusts, Grasshoppers and Crickets) of Nova Scotia*, with descriptions of the species and notes on their occurrence and habits. Halifax, N.S., Trans. N.S. Inst. Sci. Vol. XIV, Part 3, pp. 201-356, 4 plates; author's separates published 15 July, 1918. Such provincial contri-

butions are of much interest and will undoubtedly assist in a better knowledge of the species. Descriptions of all the Nova Scotia species are given, with keys to assist in more ready identification. The economic species are discussed at greater length.

RAU, PHIL, and RAU, NELLIE. Wasp Studies Afield. Introduction by W. M. Wheeler. Princeton University Press; price \$2.00. This volume of 368 pages contains most interesting information on the habits of wasps that build their nests in burrows. The chapter headings are: Some Bembicene Wasps; Behaviour of Wasps belonging to the Family Pompilidæ; Some Fly-catching Wasps; The Bee-killing Wasps; Some Mud-daubing Wasps; The Hunters of Small Orthoptera; The Hunters of Large Orthoptera; The Sand-loving Ammophila; Some Social Wasps—Experiments on the Homing of *Polistes pallipes*; The Mining and other Wasps of the Family Eumenidæ; General Considerations.

SWAINE, J. M. Canadian Bark-beetles, Part II, a preliminary classification with an account of the habits and means of control. Bull. No. 14, Ent. Br., Dept. Agriculture, Ottawa, issued Sept. 6, 1918. This bulletin was prepared with the object of assisting students and practical foresters in determining the bark-beetles of Canadian forests. Part I discusses "The Beetles and Their Habits"; Part II "Bark-beetle Injuries and the Means of Control"; Part III "Structural Characters of the Bark-beetles"; and Part IV "Classification—A preliminary Arrangement of the Canadian Bark-beetles." Thirty-one plates and several figures in the text add great value to the publication. This, the most important publication on these insects, will be invaluable to entomologists generally.

WASHBURN, F. L. Injurious Insects and Useful Birds. Philadelphia and London: J. B. Lippincott Co., 414 illustrations in text and 4 coloured plates. Price \$2.00. This volume, although prepared particularly for high schools and agricultural colleges, will be a useful work of reference for amateur entomologists, gardeners, and farmers generally. Chapters I to VI deal with losses due to insects and rodents, etc.; chapters VII to XVIII discuss insects affecting various crops. Chapter XIX, "Our Insect Friends," XX, "The Relation of Birds to Agriculture," and XXI, "Some Four-footed Pests of the Farm," complete the volume.

WILSON, H. F., and VICKERY, R. A. A species list of the Aphididæ of the World and their Recorded Food Plants. Reprinted from the Transactions of the Wisconsin Academy of Sciences, Arts and Letters, Vol. XIX, part I; issued Nov. 1918, pp. 22-355. This is divided into two parts; Part I—A species list of the Aphididæ of the world with their recorded food plants; Part II—A list of Aphid food plants and the Aphids said to attack them. Students of aphids will find this publication of great value. It is indeed an important contribution.

NOTES OF CAPTURES.

LEPIDOPTERA.

(Arranged according to Barnes and McDunnough's Check List of the Lepidoptera of North America.)

Pieridæ.

35. *Pieris napi pseudonapi* B. & McD. Blairmore, Alta., June, (K. Bowman).
46. *Authocharis sara julia* Edw. Blairmore, Alta., June, (K. Bowman).
64. *Eurymus christina gigantea* Stkr. Mile 214, 332, H. B. Ry., Man., July, 1917, (J. B. Wallis).

68. *Eurymus palaeno chippewa* Edw. Mile 214, 332, H. B. Ry., Man., July, 1917, (J. B. Wallis).

Satyridæ.

122. *Oeneis chryxus calais* Scudd. Mile 332, H. B. Ry., Man. July, 1917, (J. B. Wallis).

Nymphalidæ.

172. *Argynnis edwardsi* Reak. Blairmore, Alta., June, (K. Bowman).
173. *Argynnis platina* Skin. Blairmore, Alta., June, (K. Bowman).
198. *Brenthis youngi* Holl. In the Entomological Record for 1917, this species was recorded from Klutlan Glacier, Y. T. On further study the specimen proves to be *Brenthis frigga* var. *improba* Butl.
200. *Brenthis epithore* Bdv. Blairmore, Alta., June, (K. Bowman).
220. *Euphydryas gilletti* Barnes. Nordegg, Alta., July, (K. Bowman).
226. *Melitaea palla* Bdv. Blairmore, Alta., June, (K. Bowman).
279. *Aglais californica* Bdv. Regarding this species Mr. F. C. Whitehouse sends the following note: "Red Deer, Alta., mid-June, large migratory flight of presumably hibernated insects from B.C.; mid-August, new brood appeared."
313. *Chlorippe clyton* Bdv. & Lec. Pt. Pelee, Ont., Aug. 14, 1909, (P. A. Taverner).

Lycaenidæ.

411. *Heodes cupreus* Edw. Mt. McLean, B.C., 7,000 feet, and at head of Phair Creek, about 30 miles from Lillooet, B.C., (A. W. A. Phair).
427. *Plebeius melissa* Edw. Goldstream, B.C., July 3, 1918, (E. H. Blackmore). Rather rare. This species was not included in the "Check List of B. C. Lepidoptera, 1906," for some unaccountable reason, as it occurs regularly throughout the interior, although it is very common on Vancouver Island (E.H.B.).
432. *Plebeius yukona* Holl. Mile 332, H. B. Ry., Man., July, 1917, (J. B. Wallis).
433. *Plebeius icarioides pembina* Edw. Blairmore, Alta., June, (K. Bowman).

Sphingidæ.

733. *Haemorrhagia gracilis* G. & R. Nipigon, Ont., (J. Fletcher).
741. *Pholus fasciatus* Sulz. Annapolis Royal, N.S., Oct. 31, 1918, (A. Kelsall). This is a beautiful specimen and is now in the Ottawa collection. It is the only Canadian example I have seen, (A. G.).

Arctiidæ.

892. *Clemensia albata* Pack. Edmonton, Alta., Aug. 1917, (D. Mackie).
939. *Dodia albertæ* Dyar. Mile 214, H. B. Ry., Man., July, 1917, (J. B. Wallis).
948b. *Phragmatobia fuliginosa borealis* Staud. Vernon, B.C., April 26, 1918, (M. Ruhmann). I have also a specimen taken at Vancouver, B.C., on April 23, 1907, by the late Captain R. V. Harvey. These are the only two specimens known to me and constitute a new addition to the B.C. List. (E. H. B.).
955. *Diacrisia vagans kasloa* Dyar. Blairmore, Alta., June, (K. Bowman).
956. *Diacrisia rubra* Neum. Edmonton, Alta., June, 1916, (D. Mackie).
962. *Estigmene prima* Slosson. Edmonton, Alta. and Red Deer, Alta., May-June, 1916, (K. Bowman).

Noctuidæ.

1214. *Copablepharon viridisparsa* Dod. Lillooet, B.C., Aug. 24, 1916, (A. W. A. Phair). One specimen a trifle worn. New to B.C., originally described from Lethbridge, Alta., (E.H.B.).
1313. *Euxoa ontario* Sm. Edmonton, Alta., and Pocahontas, Alta., July-August, 1916-1917, (K. Bowman and D. Mackie).
1315. *Euxoa quinquelinea* Sm. Rossland, B.C. No date. (W. H. Danby). New to B.C., (E.H.B.).
- 1315a. *Euxoa quinquelinea lutulenta* Sm. Okanagan Landing, B.C., August 25, 1915, (J. A. Munro). New to B.C., (E.H.B.).
- 1353a. *Euxoa divergens abar* Stkr. Duncan, B.C., June 29, 1896, (E. M. Skinner). New to B.C., (E.H.B.).
1357. *Euxoa redimicula* Morr. Atlin, B.C., Aug. 8, 1914, (E. M. Anderson). This is an interesting record as showing the far northern range of this species. (E.H.B.).
1379. *Chorizagrotis thanatologia* Dyar. Ottawa, Ont., June 28, July 7, 1899, (C. H. Young); Ottawa, June 29, 1905, (J. Fletcher); Strathroy, Ont., July 4, 1918, (H. F. Hudson). These specimens are very close to the variety *sordida* Sm., as figured by Dod, but are slightly redder. Wellington, B.C., (G. W. Taylor). This specimen is close to Dod's figure of *boretha* (Can. Ent. XLVIII, p. 4, f. 7).
1445. *Agrotis esurialis* Grt. Duncan, B.C., June 4, 1910, (G. O. Day).
1459. *Agrotis atrata* Morr. Nordegg, Alta., July, 1917, (K. Bowman).
1468. *Pseudorthosia variabilis* Grt. Blairmore, Alta., Sept., (K. Bowman).
1502. *Lycophotia lubricans* Gn. Ottawa, Ont., July 2, 1908, (C. H. Young).
1512. *Aplectoides arufa* Sm. Pocahontas, Alta., Aug., 1916, (K. Bowman).
1513. *Aplectoides condita* Gn. Edmonton, Alta., June, 1916-1917, (D. Mackie and K. Bowman).
1529. *Anytus enthea* Grt. Edmonton, Alta., Sept., 1916, (K. Bowman).
1538. *Anomogyna sincera* H.S. Nordegg, Alta., July, 1917, (K. Bowman).
1539. *Anomogyna laetabilis* Zett. Pocahontas and Nordegg, Alta., July-Aug., (K. Bowman).
1580. *Rhynchagrotis vittifrons* Grt. Penticton, B.C., (L. A. DeWolfe). Lillooet, B.C., Oct. 19, 1917, (A. W. A. Phair). New to B.C., (E.H.B.).
1682. *Polia negussa* Sm. Rossland, B.C., no date, (W. H. Danby). New to B.C., (E.H.B.).
1693. *Polia cristifera* Wlk. Edmonton, Alta., and Pocahontas, Alta., June, 1917, (K. Bowman and D. Mackie).
1697. *Polia rogenhoferi* Moesch. Nordegg, Alta., July, 1917, (K. Bowman).
1702. *Polia variolata* Sm. Victoria, B.C., July 18, 1918, (E. H. Blackmore). Taken at rest on a fence at mid-day. There is one specimen in the Provincial Museum collection taken at Victoria in 1902. Outside of these two specimens I have no further record from B.C., (E.H.B.).
1723. *Polia pulverulenta* Sm. Aweme, Man., June 1, 1918, (N. Criddle); McNab's Island, Halifax, N.S., June 30, 1914, (J. Perrin).
1734. *Polia vicina* Grt. Okanagan Landing, B.C., Aug. 5, 1916, (J. A. Munro). This is the same species which has been previously listed from Kaslo as *pensilis* Grt., the latter species only occurring on Vancouver Island and in the Lower Fraser Valley, (E.H.B.).
2001. *Cucullia omissa* Dod. Ottawa, Ont., June 5, 1906, (C. H. Young).

2018. *Oncocnemis hayesi* Grt. Blairmore, Alta., Sept., (K. Bowman).
2061. *Oncocnemis atrifasciata* Morr. Laterriere, Chicoutimi, Que., Aug. 25, 1878, (V. A. Huard). I recently determined this specimen and am assured it was captured at this place, (A.G.).
2098. *Momophana comstocki* Grt. Near Quebec City, Que., (V. A. Huard).
2125. *Hillia discinigra* Wlk. Edmonton, Alta., Aug., 1916, (D. Mackie).
2168. *Graptolitha thaxteri* Grt. Edmonton, Alta., Sept., 1916-1917, (D. Mackie).
2170. *Xylena mertena* Sm. Lillooet, B.C., (A. W. A. Phair).
2172. *Xylena brillians* Ottol. Edmonton, Alta., Sept., 1917, (D. Mackie).
2185. *Pleroma cinerea* Sm. Lillooet, B.C., May 4, 1916, (E. M. Anderson); Armstrong, B.C., no date, (W. Downes).
2279. *Trachea parcata* Sm. Nordegg, Alta., July, 1917, (K. Bowman).
2315. *Trachea impulsu* Gn. Victoria, B.C., July 6, 1918, (E. H. Blackmore). First record from Vancouver Island, previously recorded from Kaslo, (E.H.B.).
2313. *Oligia includens* Wlk. Edmonton, Alta., July-Sept., 1916-17, (K. Bowman and D. Mackie).
2359. *Eremobia claudens* Wlk. Hymers, Ont., Aug. 16, 30, 1913, (H. Dawson).
2502. *Acronycta lithospila* Grt. Chelsea, Que., June 29, 1917, (J. H. McDunnough).
- Xylomæa chagnoni* B. & McD. Ottawa, July 13, 1908, (C. H. Young); Trenton, Ont., 1899, (J. D. Evans). In the Ent. Record for 1905, this recently described species is recorded under the name of *Hadena didonea* Sm., the specimens having been reared by Fletcher from larvæ found in the roots of *Phalaris arundinacea*.
2524. *Andropolia aedon* Grt. Duncan, B.C., no date, (E. M. Skinner). New to B.C., (E.H.B.).
2784. *Arzama obliqua* Wlk. Duncan, B.C., June 26, 1906, (E. M. Skinner). One specimen in splendid condition; new to B.C., (E.H.B.).
- * *Catocala atala* Cassino. Hymers, Ont., Sept. 18, 1911; Lepidopterist, II, 52.
- * *Catocala briseis clarissima* Beut. Cartwright, Man., (Heath); Winnipeg, Man., (J. B. Wallis); Lepidopterist, II, 66.
- * *Catocala blandula manitobense* Cassino. Cartwright, Man., July 17; Lepidopterist, II, 81.
3109. *Catocala blandula* Hlst. Red Deer, Alta., August, 1905, (K. Bowman); Ottawa, Ont., July 26, 1906, (C. H. Young).
3207. *Panthea acronyctoides* Wlk. Onah, Man., July 9, 1918, (N. Criddle, J. B. Wallis and L. H. Roberts).
3245. *Autographa v-alba* Ottol. Rossland, B.C., no date, (W. H. Danby). Only B.C., previous record from Kaslo, (E.H.B.).
3272. *Autographa metallica* Grt. Victoria, B.C., June 21, 1918, (E. H. Blackmore). First record from Victoria, B.C., that I know of, (E.H.B.).
- * *Syneda hudsonica heathi* B. & McD. Cartwright, Man., June, (E. F. Heath); Cont. Nat. Hist. Lep. N.A., IV, 2, 122.
3434. *Rivula propinqualis* Gn. Edmonton, Alta., July, 1917, (K. Bowman).
- Parahypenodes quadralis* B & McD. Trenton, Ont., Aug. 30, 1908, (J. D. Evans).
3511. *Zanclognatha latalba* Sm. Edmonton, Alta., July, 1915-1917, (K. Bowman and D. Mackie).

3580. *Hypena californica* Behr. Edmonton, Alta., Sept., 1917, (D. Mackie).

* *Parahypenodes quadralis* B. & McD. St. Therese Island, St. John's Co., Que., July, (W. Chagnon); Cont. Nat. Hist. Lep. N.A., IV, 2, 124.

Notodontidæ.

3669. *Cerura borealis* Bdv. Edmonton, Alta., June-July, 1916-1917, (D. Mackie and K. Bowman).

3670. *Cerura occidentalis* Lint. Nordegg, Alta., and Pocahontas, Alta., July-August, (K. Bowman).

Lymantriidæ.

3704. *Hemerocampa vetusta gulosa* Hy. Edw. Chase, B.C., Aug. 4-6, 1917, (W. B. Anderson).

Geometridæ.

3802. *Synchlora rubrifrontaria* Pack. Edmonton, Alta., July, 1917, (D. Mackie).

3936. *Stamnoctenis morrisata* Hulst. Goldstream, B.C., July 5, 1918—July 8, 1918, two males, (E. H. Blackmore). First record from here; recorded from Duncan, B.C., last year by A. W. Hanham, which was the first record from Vancouver Island, (E.H.B.).

3950. *Acasis viridata* Pack. Edmonton, Alta., May, 1915-1916, (D. Mackie).

3955. *Cladura atroliturata* Wlk. Edmonton, Alta., April-May, 1915-1916, (K. Bowman and D. Mackie).

* *Eustroma fasciata* B. & McD. Cowichan Lake, Vancouver Island, B.C., June; Cont. Lep. N.A., Vol. IV, 2, 137.

3981. *Lygris destinata lugubrata* Moesch. Edmonton, Alta., July-August, 1915-1917, (D. Mackie).

3983. *Lygris explanata cunigerata* Wlk. Edmonton, Alta., July-August, 1915-1917, (D. Mackie).

* *Lygris xyliua serrataria* B. & McD. Ottawa, Ont., (C. H. Young).

* *Thera georgii benesignata* B. & McD. Wellington, B.C., July 28, 1905, Sept. 12, 1903; Duncan, B.C.; Cont. Lep. N.A. III, No. 4, 226.

3987a. *Diactinia silaceata albolineata* Pack. Victoria, B.C., April 30, 1918—July 24, 1918, (E. H. Blackmore). First record from Victoria, (E.H.B.).

3993. *Dysstroma citrata* L. Pocahontas, Alta., Aug., 1917, (K. Bowman).

3995. *Dysstroma walkerata* Pears. Nordegg, Alta., July, 1917, (K. Bowman).

* *Hydriomena macdunnoughi* Swett. Atlin, B.C., June 11, 1914; Can. Ent. L, 296.

* *Xanthorhoe blackmorei* Swett. Victoria, B.C., May 2, 19, 1915, (E.H. Blackmore); Can. Ent. L, 21.

* *Xanthorhoe macdunnoughi* Swett. Victoria, B.C., May 30, 1915; May 14, 1913; (E. H. Blackmore); Duncan, B.C., (in coll. E.H.B.); Can. Ent. L, 17.

* *Xanthorhoe atlinensis* Swett. Atlin, B.C., June 26, 28, 1914; Can. Ent. L, 20.

4050. *Xanthorhoe iduata* Gn. Edmonton, Alta., June-July, 1915-1916, (D. Mackie).

4060. *Entephria aurata* Pack. Edmonton, Alta., July, 1915, (D. Mackie).

* *Oporinia autumnata henshawi* Swett. London, Ont., (Miss E. Morton and J. A. Moffatt); Lepidopterist, I, 47, (1917).

4077. *Euphyia luctuata* Schiff. Victoria, B.C., June 14, 1917, (W. Downes).
First record from Victoria, (E.H.B.).
- * *Epirrhoe plebeculata vivida* B. & McD. Wellington and Goldstream, B.C.;
Cont. Lep. N.A., III, No. 4, 232.
4094. *Perizoma basaliata grandis* Hlst. Edmonton, Alta., July, 1915-1916, (D. Mackie).
4114. *Venusia cambrica* Curt. Edmonton, Alta., July, 1915, (D. Mackie).
4122. *Edule mendica* Wlk. Edmonton, Alta., June-July, 1915-1917, (K. Bowman and D. Mackie).
4137. *Eupithecia albipunctata* Haw. Edmonton, Alta., July, 1917, (D. Mackie).
4168. *Eupithecia coagulata* Gn. Edmonton, Alta., July, 1917, (D. Mackie).
4172. *Eupithecia niphadophilata* Dyar. Pochontas, Alta., August, 1917, (K. Bowman).
4185. *Eupithecia scelestata* Tayl. Pochontas, Alta., June, 1917, (K. Bowman).
4189. *Eupithecia alberta* Tayl. Nordegg, Alta., July, 1917, (K. Bowman).
4199. *Eupithecia terminata* Tayl. Pochontas, Alta., June, 1917, (K. Bowman).
4274. *Eupithecia fumata* Tayl. Edmonton, Alta., May-June, 1916-1917, (D. Mackie).
- * *Horisme vitalbata incana* Swett. Calgary, Alta., June 5, 1914; June 26, 1907; June 26, 1914, (Wolley-Dod); Psyche, XXIV, 190.
4291. *Dasyfidonia avuncularia* Gn. Blairmore, Alta., May, (K. Bowman).
- 4360a. *Phasiane respersata teucaria* Stkr. Victoria, B.C., May 28, 1918, (E. H. Blackmore).
4372. *Phasiane neptaria* Gn. Blairmore, Alta., May and Sept., (K. Bowman).
- 4372b. *Phasiane neptaria sinuata* Pack. Victoria, B.C., May 2, 1918, (E. H. Blackmore). This has been previously listed as *neptaria* Gn., but has been found to be conspecific with *sinuata* described by Packard from Vancouver Island. It occurs sparingly throughout the province, (E.H.B.).
- * *Phasiane ponderosa* B. & McD. Cartwright, Man., June 14, July 24; Aweme, Man., June 20; Calgary, Alta., June 16; Cont. Lep. N.A., III, No. 4, 235.
- * *Phasiane ponderosa demaculata* B. & McD. Calgary, Alta., May 11, July 1, 5; Banff, Alta., July 1; Field, B.C., July 2; Cont. Lep. N.A. III, No. 4, 235.
4421. *Itame bitactata* Wlk. Pochontas, Alta., July, 1917, (K. Bowman).
4467. *Caripeta angustiorata* Wlk. Blairmore, Alta., July, (K. Bowman).
4565. *Cleora indicataria* Wlk. Edmonton, Alta., June-July, 1915-1917, (K. Bowman and D. Mackie).
4581. *Cleora emasculata* Dyar. Edmonton, Alta., June 1915-1917, (D. Mackie).
- * *Cleora satisfacta* B. & McD. Kaslo, B.C., Aug. 15; Cont. Lep. N.A., III, No. 4, 244.
- * *Aethaloptera anticaria fumata* B. & McD. Kaslo, B.C., April-May; Cont. Lep. N.A., III, No. 4, 244.
- * *Xanthotype urticaria* Swett. "Nova Scotia"; Lepidopterist, fig. 6, pl. VII, Vol. II.
- * *Xanthotype manitobensis* Swett. Aweme, Man., (N. Criddle); Lepidopterist, II, 78.
4602. *Glena cognataria* Hbn. McNab's Island, Halifax, N.S., June 14, 1910, (J. Perrin).

4608. *Lycia ursaria* Walk. Rossland, B.C., no date, (W. H. Danby). New to B.C.
 * *Plagodis intermediaria* B. & McD. Ottawa, Ont., May 16, (C. H. Young);
 Cont. Lep. N.A., III, No. 4, 248.
4680. *Nematocampa limbata* Haw. Edmonton, Alta., Aug., 1917, (D. Mackie).
 * *Metarranthis septentrionaria* B. & McD. Beulah, Man., June 21; Aweme,
 Man., May 29, June 18; Winnipeg, Man.; Cont. Lep. N.A., III,
 No. 4, 257.
4744. *Pero honestarius* Wlk. Edmonton, Alta., May-June, 1915-1917, (K.
 Bowman and D. Mackie).

Epiplemidæ.

4788. *Callizzia armorata* Pack. Edmonton, Alta., June-July, 1917, (K. Bowman
 and D. Mackie).

Pyralidæ.

- * *Loxostege albertalis* B. & McD. Gleichen, Alta., July, (F. H. Wolley-
 Dod); Beulah and Miniota, Man.; Cont. Lep. N.A., Vol. IV, 2, 160.
5018. *Loxostege chortalis* Grt. Nordegg, Alta., July, 1917, (K. Bowman).
5093. *Phlyctaenia itysalis* Wlk. Pochahontas, Alta., Aug., 1917, (K. Bowman).
5099. *Phlyctaenia terrealis* Tr. Edmonton, Alta., June-July, 1917, (K. Bow-
 man).
5140. *Pyrausta unifascialis* Pack. Nordegg, Alta., July, (K. Bowman).
5142. *Pyrausta fodinalis* Led. Edmonton, Alta., July, 1917, (K. Bowman).
5151. *Pyrausta borealis* Pack. Nordegg, Alta., July, 1917, (K. Bowman).
5154. *Pyrausta generosa* G. & R. Edmonton, Alta., July, 1917, (K. Bowman).
5155. *Pyrausta ochosalis* Dyar. Red Deer, Alta., June 1917, (K. Bowman).
5166. *Pyrausta nicalis* Grt. Edmonton, Alta., July, 1917, (K. Bowman).
5176. *Pyrausta funebris* Strom. Edmonton, Alta., Red Deer, Alta., June, 1916-
 1917, (D. Mackie and K. Bowman).
- * *Pyrausta pythialis* B. & McD. Cartwright, Man., (E. F. Heath); Aweme,
 Man., June, (N. Criddle); Cont. Nat. Hist. Lep. N.A., Vol. IV, No. 2,
 p. 164.

Eucosmidæ.

7114. *Proteopteryx oregonana* Wlshm. Aweme, Man., (N. Criddle).
7129. *Proteopteryx ilicifoliana* Kearf. Vancouver, B.C., July 30, 1917, reared
 from holly, (R. C. Treherne).

Yponomeutidæ.

- * *Swammerdamia cuprescens* Braun. Field, B.C.; Can. Ent., L, 231.

Gracilariidæ.

- * *Ornix spiræifoliella* Braun. Field, B.C.; Can. Ent., L, 234.

Hepialidæ.

8486. *Hepialus hyperboreus* Moesch. Pochahontas, Alta., August, 1917, (K.
 Bowman). Exactly like the type (B. & McD.). *Hyperboreus* appeared
 in Dod's Alberta list and he so named the species for Mr. Mackie, but
 this, according to Sir George Hampson, is *H. mathewi* Hy. Edw. (K. B.).
8488. *Hepialus mathewi* Hy. Edw. Edmonton, Alta., Aug.-Sept., 1915-1916,
 (D. Mackie and K. Bowman).

COLEOPTERA.

(Arranged according to Henshaw's list of Coleoptera of America, North of Mexico.)

Cicindelidæ.

Cicindela unijuncta Csy. Edmonton, Alta., June 16, 1917, (F. S. Carr).

30. *Cicindela hyperborea* Lec. Edmonton, Alta., June 29, 1917, (F. S. Carr).

Carabidæ.

118. *Carabus chamissonis* Fisch. Edmonton, Alta., June 5, 1917; July 4, 1917, (F. S. Carr).

154. *Elaphrus obliteratus* Mann. Mile 332, Hudson Bay Ry., Man., July 14, 1917, (J. B. Wallis). New to Manitoba.

164. *Blethisa quadricollis* Hald. Husavick, Man., July 4, 1917, (L. H. D. Roberts). New to Manitoba.

172. *Opisthius richardsoni* Kirby. Edmonton, Alta., June 28, 1916, (F. S. Carr).

234. *Dyschirius terminatus* Lec. Edmonton, Alta., April 27, 1917, (F. S. Carr).

323. *Bembidium quadrulum* Lec. Mile 256, Hudson Bay Ry., Man., July 12, 1917, (J. B. Wallis). New to Manitoba.

325. *Bembidium nigrum* Say. Winnipeg, Man., May 19, 1917. One specimen in my garden on Langside St., (J. B. Wallis). New to Manitoba.

339. *Bembidium nebraskense* Lec. Edmonton, Alta., March 29, 1918, (F. S. Carr).

343. *Bembidium transversale* Dej. Lake Dauphin, Man., March 27, 1918, (Mrs. W. W. Hippisley).

363. *Bembidium grapii* Gyll. Winnipeg, Man., April 9, 1909. This specimen has had a varied career. Prof. Wickham identified it as *dyschirinum*. Mr. Liebeck refused to commit himself. The present determination is Dr. Van Dyke's, (J. B. Wallis).

Bembidium constricticollis Haywd. Winnipeg, Man., April 24, 1916. Not quite typical, (J. B. Wallis). New to Manitoba.

373. *Bembidium obtusangulum* Lec. Leduc, Alta., May 11, 1914, (F. S. Carr).

397. *Bembidium dejectum* Csy. Winnipeg, Man., May 13, 1917. Also in my garden on Langside St., one only, (J. B. Wallis). New to Manitoba.

* *Bembidion brumale* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 22, issued Nov. 12, 1918.

* *Bembidion vacivum* Csy. Skeena River, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 22, issued Nov. 12, 1918.

* *Bembidion blanditum* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 23, issued Nov. 12, 1918.

* *Bembidion impium* Csy. Agassiz, B.C. Memoirs on the Coleoptera, VIII, p. 28, issued Nov. 12, 1918.

* *Bembidion deceptor* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 29, issued Nov. 12, 1918.

* *Bembidion nescium* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 30, issued Nov. 12, 1918.

* *Bembidion viator* Csy. Massett, Q.C.I., B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 31, issued Nov. 12, 1918.

* *Bembidion illex* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 31, issued Nov. 12, 1918.

- * *Bembidion haruspex* Csy. Inverness and Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 31, issued Nov. 12, 1918.
- * *Bembidion bucolicum* Csy. Stikine River Canon, B.C., (H. F. Wickham); Memoirs on the Coleoptera, VIII, p. 34, issued Nov. 12, 1918.
- * *Bembidion insopitans* Csy. Victoria, B.C., (H. F. Wickham); Memoirs on the Coleoptera, VIII, p. 68, issued Nov. 12, 1918.
- * *Bembidion vancouveri* Csy. Victoria, B.C., (H. F. Wickham); Memoirs on the Coleoptera, VIII, p. 73, issued Nov. 12, 1918.
- * *Bembidion imperitum* Csy. Victoria, B.C.; Memoirs on the Coleoptera, VIII, p. 91, issued Nov. 12, 1918.
- * *Bembidion mobile* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 95, issued Nov. 12, 1918.
- * *Bembidion imitator* Csy. Kamloops, B.C.; Memoirs on the Coleoptera, VIII, p. 105, issued Nov. 12, 1918.
- * *Bembidion tolerans* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 132, issued Nov. 12, 1918.
- * *Bembidion gregale* Csy. Agassiz, B.C.; Memoirs on the Coleoptera, VIII, p. 148, issued Nov. 12, 1918.
- * *Bembidion peregrinum* Csy. Massett, Q.C.I., B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 159, issued Nov. 12, 1918.
- * *Bembidion crassicornis* Csy. Inverness, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 165, issued Nov. 12, 1918.
- * *Bembidion keeni* Csy. Metlakatla, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 166, issued Nov. 12, 1918.

Pogoninae.

- * *Patrobis labradorinus* Csy. W. St. Modest, Labrador, (Sherman); Memoirs on the Coleoptera, VIII, p. 395, issued Nov. 12, 1918.
- * *Patrobis minuens* Csy. W. St. Modest, Labrador, (Sherman); Memoirs on the Coleoptera, VIII, p. 396, issued Nov. 12, 1918.
- * *Patrobis laeviceps* Csy. W. St. Modest, Labrador, (Sherman); Memoirs on the Coleoptera, VIII, p. 396, issued Nov. 12, 1918.
- * *Patrobis insularis* Csy. St. Paul Island, Alaska; Memoirs on the Coleoptera, VIII, p. 397, issued Nov. 12, 1918.
- * *Trechus brumalis* Csy. W. St. Modest, Labrador, (Sherman); Memoirs on the Coleoptera, VIII, p. 408, issued Nov. 12, 1918.

Pterostichinae.

- * *Hypherpes innatus* Csy. "Canada (west of the Rocky Mountains)"; Memoirs on the Coleoptera, VIII, p. 329, issued Nov. 12, 1918.
- * *Hypherpes responsor* Csy. Victoria, B.C., (H. F. Wickham); Memoirs on the Coleoptera, VIII, p. 330, issued Nov. 12, 1918.
- * *Hypherpes anthrax* Csy. "Vancouver Island"; Memoirs on the Coleoptera, VIII, p. 331, issued Nov. 12, 1918.
- * *Euferonia quadrifera* Csy. "Ontario"; Memoirs on the Coleoptera, VIII, p. 366, issued Nov. 12, 1918.
- * *Cryobius otariidinus* Csy. St. Paul Island, Alaska; Memoirs on the Coleoptera, VIII, p. 374, issued Nov. 12, 1918.
- * *Cryobius beringi* Csy. St. Paul Island, Alaska; Memoirs on the Coleoptera, VIII, p. 374, issued Nov. 12, 1918.

- * *Cryobius delicatus* Csy. St. Paul Island, Alaska; Memoirs on the Coleoptera, VIII, p. 375, issued Nov. 12, 1918.
- * *Cryobius brevisculus* Csy. St. Paul Island, Alaska; Memoirs on the Coleoptera, VIII, p. 375, issued Nov. 12, 1918.

Amarinæ.

- * *Curtonotus labradorensis* Csy. Labrador, (W. St. Modest); Memoirs on the Coleoptera, VIII, p. 231, issued Nov. 12, 1918.
 - * *Curtonotus scrutatus* Csy. Labrador, (W. St. Modest); Memoirs on the Coleoptera, VIII, p. 231, issued Nov. 12, 1918.
 - * *Bradytus nainensis* Csy. Nain, Labrador, (Sherman); Memoirs on the Coleoptera, VIII, p. 238, issued Nov. 12, 1918.
 - * *Celia sinuosa* Csy. Aldermere, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 277, issued Nov. 12, 1918.
 - * *Amara keeni* Csy. Inverness, B.C., (J. H. Keen); Memoirs on the Coleoptera, VIII, p. 299, issued Nov. 12, 1918.
625. *Amara haematopa* Dej. Mile 214, Hudson Bay Ry., July 9, 1917; Mile 332, July 17, 1917, (J. B. Wallis). Previously recorded from Hudson Bay territory.
651. *Amara angustata* Say. Onah, Man., July 9th, 1916, (J. B. Wallis); Aweme, Man., July 10, 1917, (E. Criddle). Rare in Manitoba.
657. *Amara impuncticollis* Say. Miami, Man., July 2, 1914; Thornhill Man., June 30, 1916; Winnipeg, Man., June 8, 1917, (J. B. Wallis). Previously recorded by Dr. Bell from Oxford House.
658. *Amara littoralis* Mann. Victoria Beach, Man., June 17, 1916, (J. B. Wallis). New to Manitoba.
661. *Amara cupreolata* Putz. Winnipeg, Man., April 24, 1916; Calgary, Alta., April 7, 1915, (Tams). Previously mixed with *protensa*, of which species I have but one really typical specimen, from Aweme, (J. B. Wallis). New to Manitoba.
833. *Platynus gemellus* Lec. Aweme, Man., Oct. 16, 1917, (N. Criddle).
1107. *Harpalus laticeps* Lec. Aweme, Man., May 14, 1904, (N. Criddle).

Dytiscidæ.

1293. *Coelambus sellatus* Lec. Edmonton, Alta., April 9, 1916, (F. S. Carr).
1298. *Coelambus unguicularis* Cr. Edmonton, Alta., April 8, 1916, (F. S. Carr).
1300. *Coelambus fraternus* Lec. Edmonton, Alta., June 12, 1915, (F. S. Carr).
1349. *Hydroporus tartaricus* Lec. Edmonton, Alta., May 8, 1915, (F. S. Carr).
1355. *Hydroporus vitulus* Er. Edmonton, Alta., April 11, 1917, (F. S. Carr).

Gyrinidæ.

1472. *Colymbetes strigatus* Lec. Edmonton, Alta., May 5, 1917, (F. S. Carr).
1505. *Gyrinus minutus* Fab. Edmonton, Alta., Aug. 10, 1917, (F. S. Carr).
1507. *Gyrinus confinis* Lec. Le Pas, Man., June 30, 1917; Mile 214, Hudson Bay Ry., July 6, 1917, (J. B. Wallis). New to Manitoba.
1517. *Gyrinus maculiventris* Lec. Edmonton, Alta., June 12, 1915, (F. S. Carr).
1519. *Gyrinus affinis* Aube. Edmonton, Alta., May 5, 1917, (F. S. Carr).
1524. *Gyrinus pectoralis* Lec. Edmonton, Alta., Sept. 15, 1917, (F. S. Carr).
1525. *Gyrinus impressicollis* Kby. Mile 214, Hudson Bay Ry., Man., (J. B. Wallis). "I feel sure this is the long lost or never recognized *impressicollis* of Kirby, known only by the type in the British Museum" (H. C. Fall).

1528. *Gyrinus lugens* Lec. Mile 214, Hudson Bay Ry., Man., (J. B. Wallis).
New to Manitoba.

Hydrophilidæ.

1630. *Philhydrus ochraceus* Mels. Mile 17, Hudson Bay Ry., July 2, 1917,
(J. B. Wallis). New to Manitoba.
9335. *Cercyon tristis* Ill. Mile 214, Hudson Bay Ry., July 6, 1917, (J. B.
Wallis). New to Manitoba.

Silphidæ.

1727. *Choleva alsiosa* Harv. Mile 214, Hudson Bay Ry., Man., July 10, 1917;
under a dead mouse, (J. B. Wallis). New to Manitoba.
Choleva spenciana Kby. Mile 214, Hudson Bay Ry., Man., July 10, 1917;
under a dead gopher, (J. B. Wallis). New to Manitoba.
1730. *Choleva clavicornis* Lec. Edmonton, Alta., Aug. 4, 1917, (F. S. Carr).
1732. *Choleva terminans* Lec. Mile 214, Hudson Bay Ry., Man., July 10, 1917;
under a dead gopher, (J. B. Wallis). New to Manitoba.
Choleva horniana Blanch. Aweme, Man., July 17, 1918, (N. Criddle and
J. B. Wallis). New to Manitoba.
1812. *Clambus gibbulus* Lec. Le Pas, Man., June 30, 1917, (J. B. Wallis).
New to Manitoba.

Staphylinidæ.

- Quedius aenescens* Makl. Aweme, Man., April 22, 1918, (N. Criddle).
New to Manitoba.
2011. *Atheta dichroa* Grav. Mile 332, Hudson Bay Ry., July 18, 1917, (J. B.
Wallis). New to Manitoba.
Atheta remulsa Csy. Mile 214, Hudson Bay Ry., July 26, 1917, in fungus,
(J. B. Wallis). New to Manitoba.
Atheta virginica Bernh. Mile 214, Hudson Bay Ry., July 10, 1917; Mile
332, Hudson Bay Ry., July 18, 1917, (J. B. Wallis). New to Manitoba.
Atheta fungi Groh. Peachland, B.C., Aug. 5, 1912; Winnipeg, Man.,
May 18, 1912; Miami, Man., June 27, 1916; on bracket fungus, (J. B.
Wallis). New to Manitoba.
Atheta dentata Bernh. Onah, Man., July 9, 1916; Winnipeg, Man., Oct.
10, 1916, (J. B. Wallis). New to Manitoba.
Atheta graminicola Gr. Mile 17, Hudson Bay Ry., July 2, 1917, (J. B.
Wallis). New to Manitoba.
Atheta irrita Csy. Mile 214, Hudson Bay Ry., July 24-26, 1917; in fungus,
(J. B. Wallis). New to Manitoba.
2017. *Atheta recondita* Er. Mile 214, Hudson Bay Ry., July 10, 1917, (J. B.
Wallis). New to Manitoba.
2022. *Amischa analis* Thom. Winnipeg, Man., May 10, 1912; April 24, 1916,
(J. B. Wallis). New to Manitoba.
Paradilacra densissima Bernh. Winnipeg, Man., Sept. 23, 1916, (J. B.
Wallis). New to Manitoba.
Metaxya awemeana Csy. Winnipeg, Man., Sept. 18, 1912; Miami, Man.,
June 26, 1916, (J. B. Wallis).
9562. *Dasyglossa prospera* Er. Winnipeg, Man., April 15, 1916; St. Norbert,
Man., June 24, 1917, (J. B. Wallis). New to Manitoba.
Gymnusa variegata Kiesw. Bird's Hill, Man., May 5, 1917, (J. B. Wallis).
New to Manitoba.

2165. *Philonthus basalis* Horn. Mile 332, Hudson Bay Ry., Man., July, 1918. One specimen now in the collection of Dr. H. C. Fall. (J. B. Wallis).
2234. *Philonthus aurulentus* Horn. Mile 214, Hudson Bay Ry., Man., July 6, 1917; Magnus, Man., Sept. 2, 1917, (J. B. Wallis). New to Manitoba.
2432. *Stenus fraternus* Csy. Mile 214, Hudson Bay Ry., Man., July 25, 26, 1917, (J. B. Wallis). New to Manitoba.
2447. *Stenus pollens* Csy. Mile 214, Hudson Bay Ry., Man., July 9-26, 1917, (J. B. Wallis). New to Manitoba.
2463. *Stenus punctatus* Er. Mile 214, Hudson Bay Ry., Man., July 26, 1917, with *pollens* and *fraternus*, (J. B. Wallis). New to Manitoba.
2634. *Tachyporus jocosus* Say. Le Pas, Man., June 30, 1917; Mile 214, Hudson Bay Ry., Man., July 6-26, 1917; Mile 332, Hudson Bay Ry., Man., July 13, 1917, not taken in Manitoba for a number of years, (J. B. Wallis).
2646. *Conosoma littoreum* Linn. Aweme, Man., Sept. 27, 1918, (N. Criddle).
2671. *Mycetoporus humidus* Say. Winnipeg, Man., April 24, 1916; Mile 214, Hudson Bay Ry., Man., July 6, 1917, (J. B. Wallis). New to Manitoba.
2675. *Mycetoporus flavicollis* Lec. Aweme, Man., July 18, 1918, (N. Criddle).
2833. *Olophrum latum* Muhl. Mile 17, Hudson Bay Ry., Man., July 2, 1917; Mile 214, July 24, 1917, (J. B. Wallis). "Said to be the same as *fuscum* Grav. An example of the latter from the Caucasus . . . looks a little different," (H. C. Fall). New to Manitoba.

Coccinellidæ.

3053. *Hippodamia americana* Cr. Mile 17, Hudson Bay Ry., Man., July 2, 1917; one only in wash-up of lake, (J. B. Wallis).
- 3065a. *Coccinella abdominalis* Say. Winnipeg, Man., July 30, 1917, (L. H. Roberts). New to Manitoba.
3122. *Hyperaspis 4-vittata* Lec. Mile 17, Hudson Bay Ry., Man., July 2, 1917, (J. B. Wallis). New to Manitoba.
3156. *Scymnus tenebrosus* Muls. Darlingford, Man., May 28, 1916, (W. R. S. Metcalfe). Rare in Manitoba.
3160. *Stetharus (Scymnus) punctum* Lec. Aweme, Man., Sept. 9, 1918, (N. Criddle). New to Manitoba.

Colydiidæ.

3290. *Cerylon castaneum* Say. Edmonton, Alta., June 9, 1917, (F. S. Carr).

Cucujidæ.

3349. *Brontes dubius* Fab. Husavick, Man., July, 1914, (J. B. Wallis). New to Manitoba.

Histeridæ.

3486. *Hister foedatus* Lec. Aweme, Man., June 2, 1912; Onah, Man., July 14, 1918, (N. Criddle).
3488. *Hister punctifer* Payk. Edmonton, Alta., Sept. 4, 1915, (F. S. Carr).
3570. *Saprinus comnomus nodifer* Westn. Edmonton, Alta., April 2, 1915, (F. S. Carr).

Nitidulidæ.

3663. *Brachyptum globulosus* Mann. Edmonton, Alta., June 5, 1916, (F. S. Carr).

3737. *Meligethes sœvus* Lec. Mile 214, Hudson Bay Ry., Man., July 6, 1917; on *Mertensia paniculata* var. *longisepala*. Occurred along the line of the Hudson Bay Ry., wherever its food plant grew, (J. B. Wallis). New to Manitoba; Edmonton, Alta., May 10, 1915, (F. S. Carr).

Nitidula nigra Schaef. Winnipeg, Man., April 23, 1916; Mile 214, Hudson Bay Ry., July 6, 1917, (J. B. Wallis). New to Manitoba.

3756. *Ips vittatus* Oliv. Lake Dauphin, Man., 1918, (Mrs. W. W. Hippiisley).

Latridiidae.

3798. *Corticaria serricollis* Lec. Mile 214, Hudson Bay Ry., July 26, 1917, (J. B. Wallis). New to Manitoba.

Byrrhidae.

3890. *Byrrhus cyclophorus* Kirby. Edmonton, Alta., June 23, 1917, (F. S. Carr).

Elateridae.

4101. *Cardiophorus edwardsii* Horn. Lillooet, B.C., (E. P. Venables).

4217. *Elater pedalis* Germ. Mile 214, June 6, 1917; Mile 332, Hudson Bay Ry., July 13, 1917, (J. B. Wallis). New to Manitoba.

4228. *Elater socer* Lec. Mile 17, Hudson Bay Ry., Man., July 2, 1917, (J. B. Wallis). New to Manitoba.

4257. *Drasterius debilis* Lec. Mile 214, Hudson Bay Ry., Man., July 6-13, 1917, (J. B. Wallis). New to Manitoba.

4414. *Paranomus costalis* Payk. Le Pas, Man., June 30, 1917; Mile 17, Hudson Bay Ry., July 2, 1917; Mile 214, Hudson Bay Ry., July 9, 1917; Mile 256, Hudson Bay Ry., July 12, 1917; Mile 332, Hudson Bay Ry., July 17, 1917, (J. B. Wallis). New to Manitoba.

Buprestidae.

4628. *Anthraxia æneogaster* Lap. Edmonton, Alta., June 27, 1917, (F. S. Carr).

4728. *Agrilus vittaticollis* Rand. Cawston, B.C., July 2, 1917, (W. R. Metcalfe).

4739. *Agrilus anxius* Gory. Cawston, B.C., June 24, 1917, (W. R. Metcalfe).

Lampyridae.

4787. *Eros aurora* Hbst. Cawston, B.C., Aug. 5, 1917, (W. R. Metcalfe).

Ptinidae.

* *Eucrada robusta* Van Dyke. Selkirk Mts., B.C., 1905, (J. C. Bradley); Bull. Brook. Ent. Soc., XIII, 6.

5337. *Endecatomus rugosus* Rand. Edmonton, Alta., June 6, 1916, (F. S. Carr).

Scarabæidae.

5596. *Geotrupes splendidus* Fab. Ft. Coulonge, Que., June 1, 1918, (J. I. Beaulne). Addition to Quebec list.

5825. *Polyphylla variolosa* Hentz. Ft. Coulonge, Que., July 24, 1917, (J. I. Beaulne).

* *Cremastochilus bifoveatus* Van Dyke. Vernon, B.C., May, (W. H. Brittain); Bull. Brook. Ent. Soc., XIII, 14.

Spondylidae.

5948. *Spondylis upiformis* Mann. Cawston, B.C., May 9, 1917, (W. R. Metcalfe).

Cerambycidae.

5967. *Tragosoma harrisii* Lec. Nordegg, Alta., July 17, 1917, (K. Bowman).
 5986. *Gonocallus collaris* Kirby. Edmonton, Alta., June 7, 1915, (F. S. Carr).
 5988. *Physocnemum brevilineum* Say. Cartwright, Man., (E. F. Heath).
 6010. *Callidium cicatricosum* Mann. Edmonton, Alta., April 8, 1916, (F. S. Carr).
 6183c. *Xylotrechus undulatus fuscus* Kby. Le Pas, Man., July 3, 1917; Mile 214, Hudson Bay Ry., July 5-26, 1917; Mile 332, Hudson Bay Ry., July 16, 1917, (J. B. Wallis). New to Manitoba.
 6184. *Xylotrechus annosus* Say. Cawston, B.C., June 24, 1917, (W. R. Metcalfe).
 6267. *Acmaeops longicornis* Kby. Cawston, B.C., May 20, June 30, 1917, (W. R. Metcalfe).
 6332b. *Leptura cribripennis* Lec. Cawston, B.C., Aug. 5, 1917, (W. R. Metcalfe).
Leptura rufibasis Lec. Mile 17, Hudson Bay Ry., July 2, 1917; called a variety of *subargentata*, (J. B. Wallis). New to Manitoba.
 6361. *Leptura mutabilis* Newm. Husavick, Man., July 12, 1917, (L. H. Roberts).
 6363. *Leptura aspera* Lec. Winnipeg, Man., May, 1917; Mile 332, Hudson Bay Ry., July 17, 1917. The Mile 332 specimen is the testaceous form, (J. B. Wallis). New to Manitoba.
Pogonocherus salicola Csy. Husavick, Man., July, 1914, (J. B. Wallis). New to Manitoba.
 6444. *Graphisurus pusillus* Kirby. Husavick, Man., July 11, 1917, (L. H. Roberts). New to Manitoba.

Chrysomelidae.

- Prasocuris ovalis* Blatch. Husavick, Man., July 3, 1917, (L. H. Roberts); seems undoubtedly to be this species. New to Canada (?).
 6891a. *Diabrotica fossata* Lec. Winnipeg, Man., Aug. 23, 1916, (J. B. Wallis). New to Manitoba.
 6932. *Oedionychis vians* Ill. Ft. Coulonge, Que., June 1, 1918, (J. I. Beaulne). Addition to Quebec list.
 6982. *Crepidodera modeeri* Linn. Husavick, Man., July 8, 1917, (L. H. Roberts); Onah, Man., July 9, 1918, (L. H. Roberts, N. Criddle, J. B. Wallis). Swept from herbage in swamp.
 7032. *Mantura floridana* Cr. Edmonton, Alta., Aug. 9, 1917, (F. S. Carr).

Bruchidae.

7159. *Bruchus macrocerus* Horn. Edmonton, Alta., July 13, 1918, (F. S. Carr).

Tenebrionidae.

- 7226a. *Phellopsis porcata* Lec. Lillooet, B.C., (E. P. Venables).
 7488. *Anaedus brunneus* Ziegl. Husavick, Man., July 12, 1915, (J. B. Wallis). New to Manitoba.
 7542. *Boletophagus depressus* Rand. Dauphin, Man., (Mrs. W. W. Hippiisley). New to Manitoba.

Cistelidae.

7626. *Mycetochares basillaris* Say. Miami, Man., July 6, 1914, (J. B. Wallis). New to Manitoba.

Melandryidae.

7665. *Enchodes sericea* Hald. Dauphin, Man., 1918, (Mrs. W. W. Hippiisley).

Pythidæ.

7707. *Crymodes discicollis* Lec. Vernon, B.C., (E. P. Venables).

Mordellidæ.

7766. *Anaspis atra* Lec. Mile 332, Hudson Bay Ry., July 17, 1917, (J. B. Wallis). *Atra* by Smith's table; locality suggests *nigra* (H. C. F.). New to Manitoba.
7778. *Mordella borealis* Lec. Mile 214, Hudson Bay Ry., Man., July 24-26, 1917; on orange-coloured fungous growth on spruce log, (J. B. Wallis). New to Manitoba.
7785. *Mordella serval* Say. Aweme, Man., July 24, 1903, (N. Criddle). New to Manitoba.
7795. *Mordellistena bicinctella* Lec. Aweme, Man., July 20, 1917, (N. Criddle). New to Manitoba.
7805. *Mordellistena vilis* Lec. Aweme, Man., June 19, 1917, (N. Criddle). New to Manitoba.
- Mordellistena frosti* Lilj. Aweme, Man., July 3, 1917, (N. Criddle). New to Canada.
7807. *Mordellistena decorella* Lec. Aweme, Man., July 7, 1911, (N. Criddle). New to Manitoba.
7819. *Mordellistena tosta* Lec. Aweme, Man., Aug. 2, 1917, (N. Criddle). New to Manitoba.
7833. *Mordellistena nigricans* Melsh. Aweme, Man., Aug. 10, 1917, (N. Criddle).
7840. *Mordellistena convicta* Lec. Aweme, Man., June 19, 1917, (N. Criddle). New to Manitoba.
7843. *Mordellistena morula* Lec. Aweme, Man., July 9, 1917, (E. Criddle). New to Manitoba.
- Mordellistena divisa* Lec. Aweme, Man., July 29, 1917, (N. Criddle). New to Manitoba.
7858. *Mordellistena æthiops* Smith. Aweme, Man., July 3, 1917, (N. Criddle). New to Manitoba.

Anthicidæ.

7918. *Notorus talpa* Laf. Onah, Man., July 9, 1918, (Wallis, Roberts, Criddle); Aweme, Man., Aug., (J. Fletcher). New to Manitoba.
- Anthicus hastatus* Csy. Thornhill, Man., Aug. 19, 1917, (J. B. Wallis). "Does not agree with type in colour," (H. C. F.). New to Manitoba.

Meloidæ.

8103. *Epicauta corvinus* Lec. Husavick, Man., (E. Coates). New to Manitoba.

Rhynchitidæ.

8203. *Auletes congruus* Wlk. Mile 332, Hudson Bay Ry., July 17, 1917, (J. B. Wallis). New to Manitoba.

Otiiorhynchidæ.

8245. *Ophryastes sulcirostris* Say. Boissevain, Man., Sept. 20, 1917, (N. Criddle).

Curculionidæ.

8367. *Apion punctinassum* Sm. Miami, Man., July 5, 1916; Onah, Man., July 9, 1916, (J. B. Wallis). New to Manitoba.
- Apion nebraskense*. Stony Mountain, Man., July 31, 1916, (J. B. Wallis). New to Manitoba.

8477. *Pissodes rotundatus* Lec. Grand Marais, Man., July 26, 1916, (J. B. Wallis). New to Manitoba.
10885. *Dorytomus vagenotatus* Csy. Winnipeg, Man., April 3-15, 1916, (J. B. Wallis); Darlingford, Man., April 23, June 4, 1916, (W. R. Metcalfe). New to Manitoba.
8571. *Endalus limatulus* Gyll. Winnipeg, Man., July 20, 1916, (J. B. Wallis). New to Manitoba.
8576. *Tanysphyrus lemnae* Fab. Miami, Man., June 27, 1916, (J. B. Wallis). New to Manitoba.
8637. *Anthonomus scutellatus* Gyll. Winnipeg, Man., Aug. 2, 1916, (J. B. Wallis). Rare in Manitoba.
11006. *Anthonomus squamulatus* Dietz. Onah, Man., July 9, 1916, (J. B. Wallis).
11018. *Pseudanthonomus validus* Dietz. Husavick, Man., Aug., 1913, (J. B. Wallis). New to Manitoba.
8675. *Orchestes minutus* Horn. Onah, Man., July 9, 1918, (N. Criddle). New to Manitoba.
8676. *Orchestes rufipes* Lec. Mile 332, Hudson Bay Ry., July 13, 1917, (J. B. Wallis). New to Manitoba.
11079. *Phytobius griseomicans* Dtz. Miami, Man., July 5, 1916; Grand Marais, Man., July 26, 1916; Stony Mountain, Man., July 31, 1916; Le Pas, Man., June 30, 1917; Mile 17, Hudson Bay Ry., July 2, 1917; Mile 214, Hudson Bay Ry., July 6, 1917; Mile 256, Hudson Bay Ry., July 12, 1917, (J. B. Wallis). Probably equals European *velatus*, (H. C. F.). New to Manitoba.
- Ceutorhynchus neglectus* Blatchley. Edmonton, Alta., June 28, 1915, (F. S. Carr).
8727. *Conotrachelus posticatus* Boh. Thornhill, Man., July 1, 1916, (J. B. Wallis). New to Manitoba.
8735. *Conotrachelus anaglypticus* Say. Miami, Man., June 28, 1916, (J. B. Wallis). New to Manitoba.

Calandridæ.

- Sphenophorus zeæ*. Winnipeg, Man., July 1, 1916, (J. B. Wallis). New to Manitoba.
9044. *Rhyncholus brunneus* Mann. Onah, Man., July 9, 1918, (N. Criddle).

Ipidæ.

- * *Lesperisinus criddlei* Sw. Aweme, Man., (N. Criddle); St. Hilaire, Que.; Bull. 14, pt. 2, p. 72, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.
- * *Cryphalus canadensis* Chamberlain. Roger's Pass, B.C., Sept. 28, 1915, (J. M. Swaine); Bull. 14, pt. 2, p. 88, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.
- * *Pityophthorus pseudotsugæ* Sw. Vernon, B.C., June 29, 1914, (J. M. Swaine); Bull. 14, pt. 2, p. 99, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.
- * *Pityogenes knechteli* Sw. Jasper Park, Alta., Aug. 30, 1915, (J. M. Swaine); Nechako Valley, B.C., Atlin, B.C., Bull. 14, pt. 2, p. 106, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.
- * *Ips laticollis* Sw. Near Ottawa, Ont., Bull. 14, pt. 2, p. 116, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.

- * *Ips dubius* Sw. Roger's Pass, B.C., Sept. 28, 1915, (J. M. Swaine); Selkirks and Rockies, between Glacier, B.C., and Banff, Alta.; Bull. 14, pt. 2, p. 119, Ent. Br., Dom. Dept. Agr., issued Sept. 6, 1918.

DIPTERA.

(Arranged according to a Catalogue of North American Diptera, by J. M. Aldrich, Smithsonian Misc. Coll. XLVI, No. 1,444. The numbers refer to the pages in the catalogue.)

Tipulidæ.

- * *Pachyrhina perdita* Dietz. Aweme, Man., Aug. 7, 1913, (E. Criddle); Trans. Amer. Ent. Soc., XLIV, 116.
 * *Pachyrhina opacivittata* Dietz. Aweme, Man., (E. Criddle); Trans. Amer. Ent. Soc., XLIV, 123.
 * *Pachyrhina festina* Dietz. Ridgeway, Ont., Aug. 15, 1910, (M. C. Van Duzee); Aweme, Man., (E. Criddle); Trans. Amer. Ent. Soc., XLIV, 126.
 * *Pachyrhina obliterated* Dietz. Ottawa, Ont., July 26, 1912, (G. Beaulieu); Trans. Amer. Ent. Soc., XLIV, 133.
 * *Tipula macrolaboides* Alex. "Hudson Bay Territory;" Can. Ent., L. 69.

Chironomidæ.

108. *Johannesomyia (Ceratopogon) albaria* Coq. St. Louis, Que., Aug. 15, 1918, (J. Ouellet). Addition to Quebec list.
 110. *Palpomyia (Ceratopogon) subasper* Coq. St. Louis, Que., Aug. 8, 17, 19, 1918, (J. Ouellet). Addition to Quebec list.

Mycetophilidæ.

- Leia opima* Lw. Outremont, Que., Aug. 25, (J. Ouellet). New to Canada, (J. M. A.).
 * *Neosciara lobosa* Petten. Carbonate, Columbia River, B.C., July 7-12, 1908, (J. C. Bradley); An. Ent. Soc. Amer., XI, 333.
 * *Neosciara ovata* Petten. Howser, Selkirk Mountains, B.C., June 22, 1905, (J. C. Bradley); An. Ent. Soc. Amer., XI, 336.

Bibionidæ.

166. *Bibio nervosus* Lw. Outremont, Que., May 15, 1917, (J. Ouellet). Addition to Quebec list.
 166. *Bibio xanthopus* Wied. Montreal, Que., May 21, 1918, (A. F. Winn). Addition to Quebec list.
 167. *Dilophus obesulus* Lw. Outremont, Que., June 7, 1917; St. Louis, Que., July 8, 1918, (J. Ouellet). Addition to Quebec list.
 167. *Dilophus tibialis* Lw. St. Louis, Que., Aug. 8, 1918, (J. Ouellet). Addition to Quebec list.

Tabanidæ.

197. *Chrysops mæchus* O. S. Joliette, Que., July 15, 1917, (J. Ouellet). Addition to Quebec list.
 198. *Chrysops striatus* O. S. St. Louis, Que., Aug. 3, 9, 1918, (J. Ouellet). Addition to Quebec list.
 198. *Chrysops univittatus* Macq. Joliette, Que., July 6, 22, 1918, (J. Ouellet). Addition to Quebec list.

Therevidæ.

247. *Psilocephala notata* Wied. Coniston, Ont., July 26, 1915, (H. S. Parish).
Mr. J. Ouellet has also taken the species in Quebec Province. Addition
to Quebec list.
247. *Psilocephala nigra* Say. Montreal, Que., Aug. 25, 1917; St. Louis, Que.,
Aug. 3, 1918, (J. Ouellet). Addition to Quebec list.

Mydaidæ.

251. *Mydas clavatus* Dr. Longwood, Ont., July 4, 1918, (G. Blair).

Asilidæ.

- Asilus erythrocnemius* Hine. Montreal, Que., Aug. 28, 1917; Joliette,
Que., Aug. 15, 1917; St. Louis, Que., Aug. 3, 1918, (J. Ouellet). Addi-
tion to Quebec list.
283. *Asilus paropus* Walk. St. Louis, Que., Aug. 6, 1918, (J. Ouellet). Addi-
tion to Quebec list.

Dolichopodidæ.

297. *Hydrophorus chrysologus* Walk. St. Louis, Que., Aug. 6, 20, 1918, (J.
Ouellet). Addition to Quebec list.

Empidæ.

- * *Drapetis aliternigra* Mel. "British Columbia;" An. Ent. Soc. Amer.,
XI, 192.
- * *Drapetis infumata* Mel. Nelson, B.C., July 17, 1910; An. Ent. Soc.
Amer., XI, 194.
- * *Drapetis setulosa* Mel. "British Columbia;" An. Ent. Soc. Amer., XI, 196.
- * *Endrapetis facialis* Mel. Medicine Hat, Alta., (J. R. Malloch); An. Ent.
Soc. Amer., XI, 200.
- Microsania imperfecta* Lw. Aweme, Man., Sept. 18, 1915, (N. Criddle).
317. *Syneches pusillus* Lw. Terrebonne, Que., Aug. 20, 1918; St. Louis, Que.,
Aug. 13, 1918, (J. Ouellet). Addition to Quebec list.
331. *Rhamphomyia irregularis* Lw. Outremont, Que., May 19, 1917, (J.
Ouellet). Addition to Quebec list.

Phoridæ.

- Aphiochaeta evarthæ* Mall. Strathroy, Ont., Aug. 14, 1918, (H. F.
Hudson).

Syrphidæ.

- Pipiza festiva* Mg. Mount Royal, Que., May 21, June 2, 1918, (J. Ouellet).
350. *Pipiza pisticoides* Will. Mount Royal, Que., May 23, June 2, 1918, (J.
Ouellet). Addition to Quebec list.
363. *Didea laxa* O. S. Outremont, Que., Sept. 19, 1918, (J. Ouellet). Addi-
tion to Quebec list.
- Syrphus perplexus* Osb. Outremont, Que., June 5, Sept. 1, 1918, (J.
Ouellet); Rawdon, Que., Aug. 12, 1917. Addition to Quebec list.
377. *Volucella bombylans americana* Jns. Montreal, Que., June 28, 1917, (J.
Ouellet). Addition to Quebec list.
393. *Helophilus hamatus* Lw. St. Louis, Que., Aug. 16, 1918, (J. Ouellet).
Addition to Quebec list.
393. *Helophilus laetus* Lw. Outremont, Que., June 5, 1917; St. Louis, Que.,
Aug. 16, 1918, (J. Ouellet). Addition to Quebec list.

399. *Xylota fraudulosa* Lw. Outremont, Que., May 15, June 2, 1918, (J. Ouellet). Addition to Quebec list.

Conopidæ.

412. *Oncomyia modesta* Will. St. Louis, Que., Aug. 15, 1918, (J. Ouellet). Addition to Quebec list.

Tachinidæ.

- Viviania lachnosternæ* Tns. St. Remi, Que., June 24, 1918, (J. Ouellet). New to Canada, (J. M. A.).
(*Imitomyia*) *Himantostoma sugens* Lw. According to Aldrich *Saskatchewaniana canadensis*, records of which occur in the Ent. Record for 1915, is evidently the long lost *H. sugens*.
433. *Hypostena barbata* Coq. St. Louis, Que., Aug. 3, 1918, (J. Ouellet). Addition to Quebec list.
440. *Eutrixa exilis* Coq. Outremont, Que., May 19, 1917, (J. Ouellet). Addition to Quebec list.
441. *Xanthomelana flavipes* Coq. Terrebonne, Que., Aug. 19, (J. Ouellet). New to Canada, (J. M. A.).
445. *Metaplagia occidentalis* Coq. Joliette, Que., July 10, 1917, (J. Ouellet). Addition to Quebec list.
- Panzeria ampelos* Walk. Outremont, Que., May 20, 1917; Sept. 19, 1918; Joliette, Que., July 5, 24, 1918; St. Louis, Que., Aug. 7, 1918, (J. Ouellet). Addition to Quebec list.
- Exorista caesar* Ald. "I lately got some material for determination which almost convinced me that my *Exorista caesar*, a Canadian fly, is a synonym of *nigripalpis* Tns. The point of difference was the existence of one, or several bristles on the outer front side of the middle tibia; I now think this is sometimes variable, though usually constant." (J. M. A.).
461. *Phorocera erecta* Coq. Mount Royal, Que., May 23, 1918, (J. Ouellet). New to Canada, (J.M.A.).
470. *Tachina robusta* Tns. Newaygo, Argenteuil Co., Que., June 17, 1917, (A. F. Winn). No definite Quebec record in Quebec list.
475. *Phorichaeta sequax* Will. Outremont, Que., July 29, 1917, Sept. 16, Oct. 1, 1918; St. Louis, Que., July 30, 1918, (J. Ouellet). No Quebec records in Quebec list.
488. *Echinomyia decisa* Wlk. Cap a l'Aigle, Que., Aug. 3-17, 1918, (A.F. Winn); Mount Royal, Que., June 15, 1918, (J. Ouellet). Addition to Quebec list.

Dexiidæ.

- Thelairodes clemonsi* Tns. St. Remi, Que., June 25, (J. Ouellet). New to Canada, (J.M.A.).

Sarcophagidæ.

- Sarcophaga latisterna* Pk. Outremont, Que., May 20, June 23, Aug. 22, 1918, (J. Ouellet). Addition to Quebec list.
- Sarcophaga cooleyi* Pk. Allan, Sask., Aug. 11, 1917, (A. E. Cameron).
- Sarcophaga marginata* Ald. Outremont, Que., Sept. 13, 1918, (J. Ouellet). Addition to Quebec list.

- * *Sarcophaga vancouverensis* Pk. Vancouver, B.C., May 12, 19, 1916; June 11, 1916; Savory Island, July 3, 1916; Bd. Bay, May 22, 1915, (R. S. Sherman). Can. Ent., L, 123.

Muscidæ.

- Phormia azurea* Fall. Outremont, Que., July 28, 1917, (J. Ouellet).
Addition to Quebec list.
525. *Pyrellia cyanicolor* Zett. Outremont, Que., May 21, 23, 1917, (J. Ouellet).
Addition to Quebec list.

Anthomyidæ.

- Hydrotæa houghi* Mall. Outremont, Que., Sept. 21, 1917, (J. Ouellet).
Addition to Quebec list.
- * *Pogonomyia minor* Mall. Farewell Creek, Sask.; Trans. Amer. Ent. Soc., XLIV, 280.
544. *Mydæa duplicata* Mg. Outremont, Que., May 15, Aug. 25, 1917, (J. Ouellet).
Addition to Quebec list.
545. *Spilogaster signia* Wlk. Montreal, Que., Oct. 14, 1918, (A. F. Winn).
Addition to Quebec list.
- Limnophora brunneisquama* Mall. St. Remi, Que., June 25, 1918, (J. Ouellet).
Addition to Quebec list.
- * *Fannia spathiophora* Mall. Gold Rock, Rainy River District, Ont., July 21, 1905, (H. H. Newcombe); Trans. Amer. Ent. Soc., XLIV, 294.
546. *Mydæa uniseta* Stein. Outremont, Que., June 11, Sept. 18, 1918, (J. Ouellet).
Addition to Quebec list.
- Mydæa rufitibia* Stein. Outremont, Que., May 15, 1917, (J. Ouellet).
Addition to Quebec list.
- Mydæa nitida* Stein. Outremont, Que., May 28, (J. Ouellet).
Addition to Quebec list. (= *nigripennis* Walk. J.M.A.).
548. *Anthomyia albicincta* Fall. St. Louis, Que., Aug. 15, 1918, (J. Ouellet).
Addition to Quebec list.
- Hylemyia coenosiaformis* St. St. Louis, Que., July 30, Aug. 15, 1918, (J. Ouellet).
Addition to Quebec list.
- * *Hylemyia pluvialis* Mall. Gold Rock, Ont., July 21, (H. H. Newcombe);
Can. Ent. L, 310.
- Hylemyia tenax* Johannsen. Joliette, Que., July 10, 1918, (J. Ouellet).
Addition to Quebec list.
558. *Pegomyia affinis* Stein. St. Louis, Que., Aug. 8, 1918, (J. Ouellet).
Addition to Quebec list.
- * *Fucellia astuum* Ald. Vancouver, B.C., Aug. 8, 1917, (Melander);
Pender Island, B.C., (Aldrich); Proc. Cal. Acad. Sci., VIII, 157-179.
- Cænosia humilis* Mg. Outremont, Que., Sept. 13, 20, 1918, (J. Ouellet).
Addition to Quebec list.
561. *Cænosia hypopygialis* St. St. Remi, Que., June 25, 1918, (J. Ouellet).
New to Canada, (J.M.A.).
- Lispocephala alma* Mg. Mount Royal, Que., April 16, (J. Ouellet).
Addition to Quebec list.

Scatophagidæ.

565. *Cordylura latifrons* Lw. St. Louis, Que., Aug. 14, 17, 1918, (J. Ouellet).
New to Canada, (J.M.A.).

567. *Hydromyza confluens* Lw. Brome Lake, Que., Aug. 1, 1917, (A. F. Winn).
Addition to Quebec list.
567. *Opsiomyia palpalis* Coq. St. Louis, Que., Aug. 16, 1918 (J. Ouellet).
New to Canada, (J.M.A.).

Heteroneuridæ.

- Clusia czernyi* Johnson. Outremont, Que., May 31, 1917, June 15, 20, 1918, (J. Ouellet). Addition to Quebec list.

Helomyzidæ.

- Helomyza plumata* Lw. Mount Royal, Que., June 15, 1917, (J. Ouellet).
Addition to Quebec list.
Leria serrata L. Outremont, Que., May 6, 18, 1917, (J. Ouellet). Addition to Quebec list.

Borboridæ.

- Borborus marmoratus* Becker. St. Louis, Que., Aug. 13, 1918, (J. Ouellet). Addition to Quebec list.

Sciomyzidæ.

579. *Tetanocera lineata* Day. Mount Royal, Que., Sept. 20, 1917; St. Louis, Que., Aug. 7, 19, 1918, (J. Ouellet). Addition to Quebec list.

Sapromyzidæ.

- Sapromyza similata* Mall. Mount Royal, Que., June 13, 1917, Aug. 11, 1917, (J. Ouellet). New to Canada, (J.M.A.).

Trypetidæ.

603. *Acidia fratria* Lw. Montreal, Que., June 23, 1917, (J. Ouellet).
Rhagoletis fausta O. S. = *intrudens* Ald. Aweme, Man., reared from fruit of *Prunus pennsylvanica*, (N. Criddle).

Micropezidæ.

617. *Calobata pallipes* Say. St. Louis, Que., July 30, 1918, (J. Ouellet).
Addition to Quebec list.

Sepsidæ.

- Sepsis signifera curvitibia* M. & S. Outremont, Que., Sept. 21, 1917, (J. Ouellet). Addition to Quebec list.
Piophila oriens Mel. Outremont, Que., May 16, 1918, (J. Ouellet). New to Canada, (J.M.A.).
Piophila pusilla Mg. Outremont, Que., Sept. 23, 1918, (J. Ouellet).
Addition to Quebec list.

Psilidæ.

621. *Chyliza notata* Lw. Montreal, Que., May 23, 1917, (J. Ouellet). Addition to Quebec list.

Ephydridæ.

- Hyadina nitida* Macq. Aweme, Man., July 19, 1916, (N. Criddle). An European species, new to Canada.
629. *Parydra limpidipennis* Lw. St. Louis, Que., Aug. 7, 19, 1918, (J. Ouellet).
New to Canada, (J.M.A.).

630. *Scatella oscitans* Wlk. Outremont, Que., June 17, 1917, Sept. 23, 1917; St. Louis, Que., Aug. 14, 1918; St. Remi, Que., June 28, 1918, (J. Ouellet). Addition to Quebec list.

Atissa pygmaea Haliday. Aweme, Man., (N. Criddle). An European species, new to Canada.

Oscinidæ.

633. *Chlorops crocota* Lw. Aweme, Man., Aug. 11, 1917, (N. Criddle).
 634. *Chlorops rubicunda* Adams. Aweme, Man., (N. Criddle).
Elachiptera melampus Lw. Aweme, Man., (N. Criddle).
Elachiptera nigriceps Lw. Outremont, Que., Sept. 22, 1917, (J. Ouellet). Addition to Quebec list.
Siphonella finalis Beck. Aweme, Man., (N. Criddle).
 * *Dicræus incongruus* Ald. Treesbank, Man., (N. Criddle); Can. Ent. L. 340
Oscinis anthracina Lw. Aweme, Man., (N. Criddle).
Osinis incerta Beck. Aweme, Man., (N. Criddle).
Oscinis frontalis Tucker. Aweme, Man., (N. Criddle).
 * *Oscinis criddlei* Ald. Treesbank and Aweme, Man., (N. Criddle); Can. Ent. L. 341.
 * *Oscinis scabra* Ald. Treesbank, Man., May 6, 1916; Aweme, Man., Sept. 12, Oct. 13, 1916; Estevan, Sask., May 20, 1916, (N. Criddle); Can. Ent. L. 342.
Oscinis frit L. Outremont, Que., (J. Ouellet). Addition to Quebec list.
 * *Lasiosina canadensis* Ald. Ogema, Sask.; Estevan, Sask.; Treesbank, Man.; Aweme, Man., (N. Criddle); Can. Ent. L. 337.
Lasiosina similis Mall. Aweme, Man., (N. Criddle).

Geomyzidæ.

Chyromya femorella Fall. Outremont, Que., (J. Ouellet). An European species, new to Canada.

Agromyzidæ.

- Agromyza pusilla* Mg. St. Louis, Que., Aug. 14, 1918, (J. Ouellet). Addition to Quebec list.
Agromyza posticata Mg. Mount Royal, Que., Sept. 10, 22, 1917; Outremont Que., May 28, 1917, (J. Ouellet). Addition to Quebec list.
Agromyza coquilletti Mall. St. Louis, Que., July 30, 1918; Aug. 13, 1918, (J. Ouellet). Addition to Quebec list.
Agromyza laterella Zett. Terrebonne, Que., Aug. 20, 1918, (J. Ouellet). Addition to Quebec list.
Agromyza vibrissata Mall. Outremont, Quebec., Sept. 19, 1917, (J. Ouellet). Addition to Quebec list.
 648. *Agromyza parvicornis* Lw. Outremont, Que., Sept. 8, 1917, (J. Ouellet). Addition to Quebec list.
Desmometopa latipes Mg. Aweme, Man., (N. Criddle).

HYMENOPTERA.

Vipionidæ.

Opius fuscipennis Gahn. Aweme, Man., July 1, 1918; reared from *Rhagoletis fausta* O. S., (N. Criddle).

Braconidæ.

- * *Microbracon cephi* Gahan. Treesbank, Man.; reared from *Cephus cinctus* in stems of *Elymus canadensis*, (N. Criddle). Proc. Ent. Soc. Wash. XX, 19.

Serphidæ.

- Serphus caudatus* Say. Aweme, Man., Aug. 28, 1915, (N. Criddle).

Formicidæ.

- Formica bradleyi* Wheeler. Aweme, Man., May 30, 1916, (N. Criddle).
Camponotus abdominalis stercorarius Forel. Lillooet, B.C., found on imported bananas probably from Central or South America; determined by W. M. Wheeler, (A. W. A. Phair).

Audrenidæ.

- * *Andrena columbiana* Vier. Mission, B.C., Aug. 8, 1904, (R. V. Harvey); Trans. Amer. Ent. Soc., XLIII, 374.
- * *Andrena persimulata* Vier. Montreal Island, Que.; Trans. Amer. Ent. Soc., XLIII, 390.

Apidæ.

- Diadasia australis* Cr. Lethbridge, Alta., June 28, 1914, on *Opuntia*, (F. W. L. Sladen).
Diadasia diminuta Cr. Salmon Arm, Vernon, B.C., on mallow, (F. W. L. Sladen).

HEMIPTERA.

(Arranged according to a Catalogue of the Hemiptera of America, North of Mexico—excepting the Aphididæ, Coccidæ and Aleurodidæ; by E. P. Van Duzee; University of California Publications, 1917.)

Aphididæ.

- * *Symydobius americanus* Baker. Puslinch Lake, near Guelph, Ont., 1909, (A. C. Baker); Can. Ent. L, 318.

Pentatomidæ.

184. *Banasa calva* Say. Jordan, Ont., May 11, 1918, (W. A. Ross).

Coreidæ.

247. *Leptoglossus occidentalis* Heid. Jordan, Ont., June 30, 1917, (W. A. Ross).
348. *Corizus lateralis* Say. Jordan, Ont., Sept. 9, 1918, (W. A. Ross).

Lygaeidæ.

- * *Peritrechus saskatchewanensis* Barber. Oxbow, Sask., (F. Knab); Jour. N.Y. Ent. Soc. XXVI, 60

Tingididæ.

639. *Corythucha arcuata* Say. Aweme, Man., June 14, 1918, on *Quercus macrocarpus*, (N. Criddle).

640. *Corythucha pergandei* Heid. Halifax, N.S., 1897, (W. H. Harrington).
Corythucha cydoninae Fitch. Aweme, Man., Aug. 9, 1918, (N. Criddle);
 on *Crataegus* and *Amalanchier spicata*.
Corythucha immaculata O. & D. Lillooet, B.C., (A. W. A. Phair).
Corythucha heidemanni Drake. Ottawa, Ont., (W. H. Harrington).
Corythucha hewitti Drake. Aweme, Man., July 9, 1918, on *Corylus americana*, (N. Criddle).
Corythucha salicis O. & D. Trenton, Ont., Sept. 1, 1910, (J. D. Evans);
 Aweme, Man., Aug. 13, 1918, on *Salix discolor*, (N. Criddle).
Corythucha elegans Drake. Hastings Co., Ont., July 27, 1903, (J. D. Evans);
 Ottawa, Ont., Oct. 13, 1908, on poplar, (H. Groh).
Corythucha betulae Drake. Ottawa, Ont., (W. H. Harrington).

Anthocoridae.

847. *Xylocoris sordidus* Reut. Bowmanville, Ont., Aug. 19, 1913, (W. A. Ross).

Miridae.

1019. *Lygus hirticulus* Van D. Jordan, Ont., July 9, 1915, (W. A. Ross).

Cicadellidae.

- * *Erythroneura ador* McAtee. Halifax, N.S., Aug. 5, 1917, Sept. 1, 1917;
 Can. Ent., L, 361.
 * *Typhlocyba cimba* McAtee. Halifax, N.S., Sept. 1, 1917; Can. Ent., L, 360.

ODONATA.

(Arranged according to Muttkowski's Catalogue of the Odonata of North America. The numbers refer to the pages in the catalogue).

Coenagrionidae.

54. *Enallagma antennatum* Say. Ironside, Que., (L. M. Stöhr).
 60. *Enallagma hageni* Walsh. Red Deer, Alta., June 23, 1918; new to Alberta
 list, (F. C. Whitehouse).
 65. *Nehalennia posita* Hagen. Ironside, Que., (L. M. Stöhr).
 67. *Chromagrion conditum* Hagen. Ironside, Que., (L. M. Stöhr).

Aeshnidae.

82. *Hagenius brevistylus* Selys. Ironside, Que., (L. M. Stöhr). First definite
 record from Quebec province, (E.M.W.).
 83. *Ophiogomphus anomalus* Harvey. Ironside, Que., (L. M. Stöhr). Not
 previously recorded from Canada; I have, however, seen specimens from
 L. Nipigon, Ont., (E.M.W.).
 97. *Gomphus spicatus* Hagen. Ironside, Que., (L. M. Stöhr). First record
 from Quebec province, (E.M.W.).
 77. *Cordulegaster obliquus* Say. Ironside, Que., (L. M. Stöhr). First un-
 doubted record from Quebec province, Provanchier's specimens being of
 uncertain identity, (E.M.W.).

Libellulidae.

- * *Sommatochlora kennedyi* E. M. Walk. Mer Bleue, near Ottawa, June 9,
 1903, (A. Gibson); Godbout River, Que., July 29, 1918, (Walker);
 De Grassi Point, Ont., June 19, 1917, (Walker); Can. Ent., L, 371.

138. *Libellula luctuosa* Burm. Ironside, Que., (L. M. Stöhr). New to Quebec province.

PLECOPTERA.

- * *Protarcys bradleyi* Smith. Lake Louise, Alta., June 25, 1908; Rogers Pass, B.C. Aug. 7, 1908; Ground Hog Basin, Selkirk Mtns., B.C., July 22—Aug. 7, 1905, (J. C. Bradley); Trans. Amer. Ent. Soc., XLIII, 470.

COLLEMBOLA.

Mr. Charles Macnamara, of Arnprior, Ont. has continued his studies of these insects, and during 1918 he has collected the following around Arnprior. These have not been previously noted.

- * *Isotoma macnamarai* Folsom; Can. Ent., L, 291.
Seira buskii Lubbock.
Papirius maculosus Schott.
Sminthurus aquaticus Bourlet.
Sminthurus quadrimaculatus Ryder.
Sminthurus malmgreni elegantulus Reuter.

In addition to the above it is of interest to record *Achorutes harveyi* Folsom, from Aweme, Man., (N. Criddle). In the same locality the same collector has found *Isotoma viridis riparia* Nicolet.

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Ontario Department of Agriculture

THIRTY-NINTH ANNUAL REPORT

OF THE

Beekeepers' Association

OF THE

PROVINCE OF ONTARIO

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

Printed by
THE RYERSON PRESS

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel in
the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the honour to present the Thirty-ninth Annual Report of the Ontario
Beekeepers' Association for 1918.

GEO. S. HENRY,

Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
TORONTO, 1919.

Ontario Beekeepers' Association

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TREASURER'S REPORT

FOR THE YEAR ENDING OCTOBER 31ST, 1918.

<i>Receipts.</i>		<i>Expenditures.</i>	
Balance on hand, 1917	\$363 86	Grants to Associations	\$235 00
Membership fees	720 00	Convention expenses	302 50
Queen Order Receipts	733 95	O.B.A. Committee expenses ..	34 50
Affiliated Societies, dues	75 00	Subscriptions, <i>The Beekeeper</i> ..	715 55
Ontario Government grant ...	700 00	Printing and postage	208 46
Pound Package Receipts	1,016 66	Pound Package Order payments	992 09
Sugar Order Receipts	7,601 38	Queen Order payments	765 12
Sundries	78 35	Sugar payments	7,698 55
		Office help	89 00
		Incidentals	14 19
		Balance on hand	234 24
	\$11,239 20		
			\$11,289 20

JAS. ARMSTRONG,
President.

P. W. HODGETTS,
Secretary-Treasurer.

Ontario Beekeepers' Association

The thirty-ninth annual meeting of the Ontario Beekeepers' Association was held at the Parliament Buildings, Toronto, on February 4th, 5th and 6th, 1919. There was a large attendance of members at all the sessions.

The President, JAMES ARMSTRONG, Selkirk, Ontario, occupied the chair at all the meetings.

PRESIDENT'S ADDRESS.

JAMES ARMSTRONG, SELKIRK.

It is with a feeling of great relief and renewed enthusiasm that we assemble here for our Annual Convention, and it is good to see so many present to take part in the proceedings. The Great War is at an end, and the terrible epidemic which has been sweeping over the world seems to have run its course. It had been the intention of the Association to hold its Convention in December, 1918, but the unusually severe outbreak of Spanish influenza made it advisable to postpone this meeting until the present time.

A survey of Ontario beekeeping during 1918 clearly impresses the fact that the past year has been a most strenuous year for beekeepers. War conditions were much more acute than in 1917. Sufficient efficient apiary help was out of the question. Conscription needed all the young, able-bodied men and in some instances it was necessary for the older beekeepers to relieve the younger beekeepers of their apairy responsibilities while they went "over there." The cost of beekeeping supplies, with the exception of woodenware, advanced considerably and it was difficult to obtain quick delivery owing to shortage of labor and transportation difficulties.

The prospects for a good honey crop did not appear at the first of the season, but conditions eventually favored the beekeeper, and we have enjoyed one of the most prosperous years in our history. The severe winter was followed by a cold, backward spring, and the heavy colony loss which resulted could not be replaced by shipments of package bees from the South. Alsike was badly winter killed in most localities. The white honey flow, however, did not open until late and moderately strong colonies built up rapidly and were in splendid condition to take advantage of the flow when it did open. White Dutch Clover appears to have yielded exceptionally well in some localities, and to have made up for the shortage of Alsike bloom. Altogether, Ontario beekeepers harvested a very good crop and the price they were able to obtain for their product made 1918 one of the best years the Ontario beekeepers have known. In considering the high price obtained, we must remember that the sugar restrictions and the high buying power of the public were distinctly in our favor. I am satisfied that a return to normal times will be followed by a drop in price as well as a drop in the cost of beekeeping supplies and efficient labor. It would not be to the benefit of the Ontario beekeeper to have honey remain at its present high price with other foodstuffs becoming

cheaper. Such a calamity would place honey beyond the reach of the average consumer and lose for it the value of the publicity which it has secured during the past four years.

We are glad to welcome to our midst, Dr. Burton N. Gates, late of Amherst, Massachusetts, U.S.A. Dr. Gates has taken charge of the Apiculture Department of the Ontario Agricultural College and I hope every beekeeper will give the new Provincial Apiarist every encouragement in his efforts to advance the best interest of Ontario beekeeping. While speaking of Dr. Gates' arrival, I would also like to mention the valuable services which have been rendered in the interim period between the resignation of Mr. Pettit and the arrival of Dr. Gates, by Mr. Wm. A. Weir. As assistant to Mr. P. W. Hodgetts he has worked faithfully and hard under very strenuous conditions to care for the interests of Ontario Beekeepers. Beside the ordinary work of the Department the sugar situation threw a vast amount of extra work on Mr. Weir's shoulders and my close contact with him has enabled me to see the service he has rendered us.

The Foul Brood situation in Ontario is of perennial interest to us and necessarily so. The occurrence of disease has been pretty well ascertained by the methods used by Mr. Pettit. We know where to expect to find both types of Foul Brood, and the time now seems ripe for a more intensive effort. It seems to me we ought to aim at cleaning up a definite block or blocks of territory each year from now on. The funds which are available for inspection work are far from sufficient to clean up the disease quickly, but what we have and can secure should, in my opinion, be utilized in cleaning up definite areas year after year until the diseased districts have been wiped out. In combatting the disease known as American Foul Brood, one of the chief difficulties arises in the lack of provision enabling the control of shipments of bees on combs from one part of the province to the other. A second difficulty is the lack of uniformity which is too often seen in the actions and words of "advanced (?)” beekeepers in treating or recommending methods for treatment of American Foul Brood. The only one *sure method* of treating this disease is that advocated by the Provincial Apiarist, and it is the method enforced under the administration of the Foul Brood Act. I think it is our duty to adhere to our standards on this question.

European Foul Brood in its western progress is now entering a district where Italian bees are largely kept. As a result the onward rush of the disease is slowing down, and its effect is much less apparent than in the earlier days.

The membership list of the Association has been slightly reduced by the war conditions of last year. With a return to peace conditions and a good honey season behind us to encourage interest, I am looking for a return to a rapidly growing membership.

The finances of the Association appear to be in good shape, but it has had much assistance from the office of the Provincial Apiarist which should be borne by itself. The business of handling queens and packages while valuable, has entailed considerable additional expense and this expense must be provided for. I think the time is ripe to advocate an advance in the membership fee to \$1.50 per annum, to cover the advancing expenses. In this connection, it has also been noted that the variation between the membership fee which the County Associations must charge and the fee charged by the Provincial Association direct, is very discouraging to the County Association and with the advance of the fee, I think it would be desirable to arrange for a uniform fee automatically enrolling members in both the County and Provincial Associations, no matter where they are received.

With the return of our country to peaceful conditions, we have a tremendous problem on our hands, and I feel it is the bounden duty of every Ontario beekeeper to play his part in its solution. I refer to the problem of the returned soldier. There is a strong interest being shown by the returning soldiers in beekeeping, and there will probably be a heavy addition to the beekeeping ranks. We should co-operate in the re-education of these men. It is to be hoped that the Apiculture Department will be given every assistance in the re-education work it will be called upon to do. When we think of how much we owe these men who have left all to fight the country's battles, who have won and who are now returning, in many cases unable to fit back into the occupations which they left, we will, I am sure, do our utmost to help re-establish them.

REPLY TO PRESIDENT'S ADDRESS.

W. W. WEBSTER, 1ST VICE-PRESIDENT, LITTLE BRITAIN.

I believe in beekeepers' conventions also farmers' conventions. No matter what our calling in life we can do it better by congregating, comparing notes and interchanging thoughts and ideas, and I think it is well that we should meet at least once a year. Down in Massachusetts, where they have large mines, a man journeying along observed a large group of idle horses in a field, on making inquiry he was informed that these horses were brought up out of the mine occasionally lest they should go blind, and it seems to me that we too should come up out of the mine and get some daylight occasionally by attending beekeepers' conventions lest we become blind to beekeeping interests for it is here we get our apicultural vision strengthened.

Thirteen months ago, when we met here with war clouds hanging over us, there were three things revolving in my mind, viz: (1) When would the war cease? (2) What effect would peace have on the already high price of honey? and (3) Who would the new Provincial Apiarist be? Now the horrors of war are at an end, and we have just emerged triumphant from a great world conflict—thanks to Uncle Sam, France, Belgium, the British army and navy, our Canadian boys and a kind Providence. As in olden times, when God was with the Israelites they won no matter how great in number the opposition, so when the Allies exercised more faith and trust in Him how quickly the victory was won. How ready we all were to sing His praises, even the newspapers devoted a whole page to the old familiar hymn "Praise God from Whom all Blessings Flow." Thirteen months ago the majority of beekeepers had sold their honey for 15c., this last season I think 25c. was the most popular price, some receiving 30c. later in the season. Now the war is over and honey prices have not dropped much. As a seller of honey I always liked the privilege of setting the price, but rarely had the opportunity, but this year there was a surprise in store for me, I approached a dealer and asked him what he was paying, and he said "Well, I think we will leave that with you, Mr. Webster," well, I thought now I am realizing at last what I had always hoped for. I was rather dumbfounded now that I had everything in my own hands, though for a moment I saw visions of 45c. honey, then I thought "This man is leaving it to my honesty and what my conscience dictates," so I just said 25c. instead of 45c. and didn't give the honey market such a boost as I intended. The Provincial Apiarist is a very important personage and almost

indispensable to the beekeeping industry, he trains the young minds in beekeeping, and also helps the more advanced beekeepers, and when Mr. Pettit dropped out we were as lost sheep without a shepherd. For a time it seemed as though there was no one in the whole wide world that was qualified for the job, but now at last we have in Dr. Gates a man in whom all are unanimous in pronouncing fitted in every way for the position and like our worthy President he is good looking as well.

Last season was a very eventful one. Living as I do in "a land flowing with milk and honey" I found was anything but "a bed of roses." First in clover bloom came frosts, chilly winds, cold and rain, preventing the secretion of nectar and resulting in a light crop of clover honey, then at the commencement of harvest came a very great hail storm, hailing out a great deal of grain, tearing down barns completely and unroofing others, and leaving the grain so flat it was almost impossible to cut. All of these things I suffered from so, at times I scarcely knew whether I was a farmer beekeeper or a beekeeper farmer, and then had to stop and consider if I were either one, I had very little time for consideration, reflection and soliloquizing, however, as the flattened grain involved extra help. I had two experienced men, but needed a third. In my extremity I got a city chap, but he was afraid of bees and could not pitch hay any faster than a cow would eat it, he could milk a little, but like John Kennedy in Nellie McClung's "Sowing seeds in Danny," "He just took from the cow what he required at the time, realizing that the cow had a much better way of keeping it than he had." In this way we struggled along full of doubts and fears and wondering how the year would end financially, then buckwheat honey began to come in plentifully which revived my hopes once more. We had two fields of alsike clover not struck by hail which some claimed would not yield well as the bees, on account of the cold, had not been permitted to work on it. This we proceeded to thrash, and as the seed rolled out a bag in ten minutes it dispelled all doubts regarding the bees having done their part. It yielded wonderfully, and prices for seed were high, which had a very soothing effect upon myself and had a tendency to revive my spirits once more. My own seed made about \$200 per acre, going a little over 12 bushel per acre, at \$16.25 per bushel. Some of my neighbors are reported to have made as high as \$245 per acre, getting a little higher yield and selling when prices advanced. So after a great deal of unnecessary anxiety and worry I found at the close of the year, a very great deal to be thankful for. Of course the bees helped in pollenizing the clover, and in justice to them I think I should credit the bees with one half the value of the seed, which would make up the deficiency in clover honey and making a very good honey year financially.

With the scarcity of sugar I observe that apiarists are not now accused of feeding sugar to produce honey for sale.

I think beekeepers worried themselves unnecessarily about the scarcity of sugar for winter feeding. I fed sealed combs of buckwheat honey. Looking over my apiary recently I found them apparently wintering well, so there seems no need for anxiety regarding the feed. In cleaning out the entrances with a wire, each colony was ready to greet me with a buzz and a contented hum as much as to say: "So long as you give us plenty of good sealed buckwheat combs you need not worry about us."

There may be many occupations more remunerative than beekeeping but with Dr. Miller "When I think of the good times I have had all these years" I do not regret spending a life with the bees on the farm.

MR. HOLMES, Athens: I am very pleased with the addresses of the President and Vice-President, we have passed through a period which perhaps took away our nerve and discouraged us. Addresses such as we have listened to encourage us, and give us inspiration to go on doing good things, and better things, even though it may not be necessary to put anything else with the sugar to make a full meal of it.

MR. EVANS, Islington: The President speaks of the desirability of having the different associations charge a uniform rate, and I think that would be correct as far as the county itself was concerned. It must be remembered that the associations are different in so far as the premium they supply their members. I am a member of three associations, Toronto, Halton and Peel, and York. In the Toronto association we pay 50c. and don't get a premium. In the Halton and Peel Association we pay 85c. and get *The Bee Journal*. In the York Association we pay \$1.75 and get membership in Provincial Association and also *Gleanings*.

MR. CHRYSLER, Chatham: I did not hear anything in the President's address about bee paralysis that interested us so much last year, and as to which we were unable to get a cure. We seemed to lay the cause of it last year to wet weather. Last year, in July, when it was very dry I had two cases of paralysis. I re-queened one of the colonies, and when they went into winter quarters they were apparently cured. The other colony I left to themselves and they continued to have the disease. They did not gather sufficient honey during the season to winter on. I do not think we can lay the cause of this disease to wet weather.

MR. HABERER, Zurich: We had trouble with paralysis last year, and again this year. We have come to the conclusion that it is not caused by the wet weather because when we had it worst it was dry. On the 26th and 27th May you could not take a step in our yard without stepping on bees, and we had a rain on the 28th, and after that you could hardly find a dead bee, and after that bee-paralysis was gone for the whole season. We had it for only two weeks. The nearest bee-keeper to us is about eight miles away, and they complained of the disease. I do not think dampness is the cause.

REV. JOHN MOORE: Last year we saw our bees gathering around in little clumps, and I was at first inclined to think that climatic conditions had something to do with it. I thought it might be the Isle of Wight disease. If it is caused by climatic conditions we will just have to wait until the climate changes, because it disappears very rapidly.

MR. HABERER: It was our honey-gathering bees that disappeared, so that the name is correct. I tried using sulphur, but I could not see any results.

MR. SLADEN, Ottawa: The Isle of Wight disease has been doing tremendous damage in England for many years; it has almost wiped out the bee industry. It was traced to the *Nosema Apis*, a parasite, a little animal that lives in the alimentary canal of the bee. Investigation had shown this parasite to be present in healthy bees, and there was some doubt as to whether the disease was due to it or not. When I was at Washington last spring I went into the matter with the authorities there, and it seems that this parasite is quite frequent in the intestinal canal of the bee, and sometimes it will burrow into the canal. It is thought that the disease is due to this parasite. In its young form it is indistinguishable from the body cells of the bee, but in its older form it is very distinct, and you can tell by dissecting the bee. No work has been done to prove that it is due to this parasite that we have this disease. It is quite possible that bee paralysis and disappearing bees are distinct diseases. There are a number of

investigators who have refused to make any statement as to the cause of the disease until it has been further investigated.

REV. MR. MOORE: At the time it appeared we had a spell of wet weather, and I thought that had something to do with bringing on the disease.

MR. SLADEN: It came from apiaries that were low lying and in shady places.

MR. BYER, Markham: We were hit hard in our own yards. There seems to be practically nothing known about this disease. All I know is that it is a very serious disease. I had a very nice letter from a well known English beekeeper, and he said it was the Isle of Wight disease. He said it had wiped out yard after yard in England. I never yet have had a colony where this disease was fatal; they seem to get right in time.

THE CHAIRMAN: We have not been able to do anything with this disease as yet, because we had our hands full last year with other work. I am still of the opinion that the damp weather has something to do with it.

MR. HABERER: There was no honey flow about the time my bees disappeared. If the disease had kept on another two weeks there would not have been any honey crop for us at all.

THE CHAIRMAN: It has been my experience in every case that as soon as we got a good honey flow, bright weather, and the bees working strong the disease disappeared.

MR. BYER: It disappeared in our apiaries eighty-five miles away from home district at the same time that it disappeared from home yards.

MR. CHRYSLER: I had two colonies affected about the first of July. I had the supers on and they were storing nicely, and I was seriously thinking of putting on the second super when I saw the bees commence to die. They continued to die until the latter part of October. The queens were laying good and trying to increase in every possible way. We had dry weather for two weeks before the bees commenced to die. It seems to me that it is an affection of the adult bee.

MR. SIBBALD, Toronto: I think Mr. Chrysler is speaking about bee paralysis and Mr. Haberer is speaking about some other disease. In my opinion if you change the queen the disease will disappear very rapidly. I have one apiary where there is a running stream of pure water, and the bees get their water from that stream. I have two other apiaries where the bees have to depend on stagnant water, and I think that where they take the water from the stagnant pools it affects them.

I feel that we are all very much indebted to the Executive Committee for the way they were able to provide us with sugar. For a long time we did not know whether we were going to be able to get it or not. If we could work out a more efficient plan for foul brood inspection I am sure it would be to the advantage of the beekeeper.

MR. CHRYSLER: This disease acted in a very peculiar way. Each day we would see numbers of bees out in front of the hives, some of them dead. This year I had only two hives affected. As our honey flow came on last year the disease disappeared.

THE CHAIRMAN: I think Mr. Chrysler's bees have been affected with paralysis. If you open the hive you will see that the bees are always shaking as if they had the ague.

MR. DUNN: We have had the bees disappear very rapidly in our district. We have the smelters down there. The bees die in bunches. In the case referred

to by the Chairman we did not see the bees die at all; they simply disappeared. They do not die around the yard or near the hive.

MR. COUSE: My bees had the disease again this year, but not nearly so badly. A man from Niagara district tells me that it is not the smelter at all. The bees in the Niagara district acted just the same as my own.

MR. HOLMES: It would seem from the discussion that climatic conditions are not responsible for this mortality among the bees, if it was climatic conditions the whole yard would be affected.

MR. EVANS: I came to the conclusion that it was due to imperfect honey. I had some honey that was sour. If I had to go over it again I would feed the bees sugar syrup, I think that would cure them.

MR. KROUSE: I do not agree with Mr. Evans, because it was very bad last year in three of our yards from which we got the very best of honey. This year I did not have it at all.

A MEMBER: Would there be any possibility that the clover might have something to do with it.

THE CHAIRMAN: I have heard that same thing before. I have heard that a horse with a white nose will be poisoned with the clover; I think there is just about as much in that as there is in the bees being poisoned.

MR. COUSE: A horse with a white nose will get it blistered from eating clover. It is a funny thing that it will poison a white nose and not a black one.

MR. WEBSTER: I have had a horse with a black nose affected in the same way.

A MEMBER: I understand that this smelter trouble has stirred up the authorities at the College to do a little experimental work. Why should they not experiment as to this disease?

THE CHAIRMAN: Experiments were carried on this summer under the direction of the Department of Agriculture, but we have no report as yet. The work is still going on and we hope for results.

EXPERIMENTS WITH POUND PACKAGES OF BEES.

E. T. BAINARD, LAMBETH.

A package of bees received here early in the season, from the dealer in the South, may be small in individual numbers, but they will be young and vigorous, in fact a miniature swarm of young bees, and a young queen just commencing to lay, if they are given a fair chance they are capable of increasing very rapidly, much faster than the majority of colonies of equal size that have been wintered over here, possibly the young queen has a great deal to do with their success.

For the rapid building up of any colony of bees, the most essential elements are: eggs, nurse bees, combs, food and heat.

In a pound package of bees we have the young queen capable of laying an abundance of eggs, and nurse bees enough to care for them.

Good combs may be secured from the extracting supers, those of all worker comb containing fresh pollen and some honey are preferable.

Combs of Heddon depth are better than deeper combs, as less heat will be required.

The most difficult problem with a small colony, is to maintain the right temperature of the hive, during the changeable weather here in Ontario.

For a number of years we have been experimenting by placing packages over strong colonies of bees in the packing cases, having a very thin board or strong duck between them, an upper entrance is provided at the side, for the top colony. This entrance is simply an inch auger hole, and a tube of card board through the packing, packing material covering the small colony on all sides. This system has proven good as many beekeepers are now using it, the one difficulty being how to separate these two colonies when they become strong, and require more room.

This last season we had about 100 packages on tops of full colonies. We commenced to remove them on a nice warm day, during fruit bloom, when they are gathering honey, taking the old colony to a new stand, in the same yard, and putting some obstruction in front of it to keep as many bees as possible on the new stand. The young colony which has been on top, is left on the old stand, and more room given. The unpacking should be done a few days previous to this work.

At the commencement of the clover flow very little difference could be noticed in the strength of these colonies, and we received about an average of 90 lbs. of clover honey from them. Some that were separated later in the season did not behave as well.

An experiment we tried last season for the first time, in the use of artificial heat for small colonies of bees, proved very interesting and quite successful. An incubator was built large enough to accommodate four colonies on the ground, one facing each way, and three deep, making room for twelve colonies of bees in single depth Heddon hives. Packing material was used around sides, top and bottom, but an opening was left in the centre of cluster for air circulation. An incubator lamp kept an average temperature of 70 degrees. Operations were begun about April 20th and continued about five weeks, when they require more room.

The bees used for this experiment were composed of four one pound packages, and two average full colonies of bees. These two full colonies of bees were divided into eight nuclei, with young queens supplied. This made us eight small nuclei, and four pound packages. Each were given the same care only the pound packages received no brood, while the eight nuclei had their brood divided among them. They were all fair colonies by July 1st, and gathered a total of 908 pounds of clover honey. The four one pound packages gathered a total of 380 lbs. or an average of 95 lbs. each. The eight nuclei gathered a total of 530 lbs. or an average of 66 lbs. each; or, as those eight nuclei having been made from two average colonies of bees in the spring, their average would be 265 pounds of clover honey per old colony, spring count.

Pound packages to be successful should be received as early in April as your dealer can supply them—usually about 10th to 15th of April, and it will take about five days for the express company to deliver them from Alabama. Last year "Owing to the War" we had bees seven days en route. Some of them were apparently dead from starvation, but some warm syrup soon revived them in a warm room.

We would very much prefer making our increase before the honey flow, as this experiment has proven, and we intend to carry on a more extensive experiment this coming spring. We have fifty young queens coming about the middle of May. Some colonies will be divided into only two parts, and this will leave them stronger than those divided into four parts.

The making of increase before the honey flow is not a new practice, as the late E. W. Alexander was quite successful years ago; but his principal crop was buckwheat, coming later in the season the colonies had more time to build up to full strength.

MR. KROUSE, Guelph: I was not able to get any pound packages of bees this year, although I had 125 ordered. I use the winter cases, and I keep my bees packed the year round. I start them on full drawn combs, four to each package, adding more combs as needed, and from these we get a very good crop. In 1916 we had exceptionally good returns; in 1917 they were not so good. We got an average of 85 lbs. in 1916. My bees did not come along until the 17th May; I would like to have them earlier. You have to be careful in putting out pound packages in a yard where you have full colonies, because you have to feed them some sugar syrup, you must not do that in the middle of the day. The proper time is in the evening when everything is quiet. If you put the pound packages in where there are full colonies and feed them in the middle of the day they do a lot of robbing.

MR. BYER: I still question the utility of buying pound packages in preference to wintering our own bees. In 1916 I got a number of packages by way of experiment. I gave them full drawn combs. They did not require any sugar syrup feeding in the spring of 1916. There was sufficient honey coming in to keep them going. I had three two-pound packages, and they were no better than the one-pound packages at opening of honey flow. All stored a big surplus that year. This year in the Markham district we just averaged fifty pounds of clover honey to the hive from full colonies, and pound packages stored nothing. Up at Fenelon Falls, where I bought a yard, I visited it five times during the season, and we took from that yard an average of one hundred pounds per colony of clover honey, and they made an increase of 30 per cent. If I had sent these pound packages to Fenelon Falls I would have a different story to tell you this year. It also depends a lot on the condition in which you get the bees. They came in good condition in 1916, and last year they did not come in good condition. I think it is a gamble.

MR. LANGSTROTH: I got some two pound packages, but they were only one pound in weight when they arrived; they were practically half dead. I had trouble in getting the matter fixed up. They made about 40 lbs. of honey in the season. I do not think I will spend any more money in that way unless the one pound packages are better than the two pound packages. My bees had to come from Alabama. They were shipped in the middle of the week, and had to stop over Sunday at some station, and that made a delay that I think could be avoided by shipping them in the beginning of the week.

MR. DUNN: Bees can be sent by parcel post on the other side and we should try and get that here.

THE CHAIRMAN: We have had that matter in hand for some time, and we will get our bees delivered by mail this year. Everything is clear as far as we know. Some of the dealers refused to send me bees early in the season on account of the cold weather. I would rather have them shipped in the cold weather than in the hot weather. Last year they arrived in a snow storm and we kept them in the house a few days, and they did well.

MR. ANGUISH: We tried some pound packages two years ago, and we had good success. We used a shallow hive. I saw Mr. Bainard passing our place with a "tin-lizzie" loaded with bees, and I thought he was going into it very extensively.

MR. KROUSE: I bought some three pound packages in 1916 and they came through in rather bad condition. There was hardly any room for the bees to move around. I shipped the three pound cases back, and asked the man to ship me two pound packages in the three pound cases, and they came through all O.K.

MR. TILLSON: I have been experimenting with pound packages for many years. They did exceedingly well. I put them in double walled hives, and I find they give better results in that way. Some of the bees were dead, and I made a claim on the shipper and he replaced them without charge. Last year I got them by mail and they came in quick time and with a very small percentage of dead bees. I do not think you should hesitate to order package bees if you can get them before the 10th May.

MR. BAINARD: If they come by express and there are any lost the express company will make good the loss, but the post office will not do that.

MR. DUNN: I understand that the dealer guarantees safe delivery by parcel post.

MR. WOODHOUSE: There is a house on Jarvis St., Toronto, that will guarantee delivery. They say they re-examine the bees before re-shipping them.

MR. WOLTZ: I ordered forty pound packages from an American firm last year and they came through in splendid shape. I had no drawn comb when they came, and I had to put them on the bare foundation and feed them, although some of the queens were dead and some of them did not lay, but I took 900 lbs. of white honey from them and they gathered sufficient buckwheat honey to put them through the winter. They were to be delivered the first day of May but I did not get them until the 16th June.

MR. CHRYSLER: There must be something wrong with the beekeepers of Ontario when we have to buy package bees. I can remember when people used to have plenty of bees to sell, now it is another story, there must be something wrong in our management.

MR. HABERER: As soon as the price of honey goes down you will be able to buy bees and you will not have to get pound packages.

MR. BAINARD: We doubled up our bees the fall before, and that is the reason we had to buy package bees in order to get back to normal.

MR. SLADEN: We have tried the pound packages for the past three years, and we came to the conclusion that they paid as well as the average colonies that wintered through. We found that the two pound package would produce about the same amount of honey as the average colony kept over winter.

The first step towards having bees shipped by parcel post was taken by the Kootenay Branch of the Beekeeper's Association of British Columbia. I went to the Post Office Department with the result that an order was issued early in January practically identical with that of the United States. I have a copy of that order with me which I will read:

LIVE BEES. Queen bees and their attendant bees, when accompanied with a copy of a certificate of the current year from a Government apiary inspector to the effect that the apiary from which said queen bees are shipped is free from disease, or by a copy of a statement by the beekeeper, made before a notary public or other officer having a seal, that the honey used in making the candy used in the queen mailing cage has been diluted and boiled in a closed vessel, may be sent in the mails when so put up as to render it practically impossible that the package shall be broken in transit, or the persons handling the same be injured, or the mail bags or their contents soiled.

Honey bees in quantities may be sent in the mails under the same conditions as are prescribed for queen bees and their attendant bees when delivery can be made to

the addresses within a period of five days. If the cages are wooden the material of which they are constructed shall not be less than three-eighths of an inch thick and the saw cuts therein or space between slats shall not be over one-eighth of an inch wide; if wire screen is used for the sides of the cages there shall be two thicknesses of screen separated by slats at least three-eighths of an inch in thickness. The container shall be provided with a suitable handle and no honeycomb, water or liquid food shall be placed therein. Such parcels shall be transported outside of mail bags.

MR. WOLTZ: Does that mean that they will accept any number of packages, or will the shipment have to be divided?

MR. SLADEN: As far as I can gather they will accept any size shipment.

REV. JOHN MOORE: How many bees are there in a pound package?

MR. JONES: Between 4,500 and 6,000.

MR. TILLSON: I had the pleasure of being entertained by Mr. Running; he is the Past-President of the Beekeepers of the United States and Past-President of the Michigan Beekeepers Association, and stands very high with such men as Mr. Dadant and Mr. Root. He assured me that he had been experimenting for a great many years with pound packages and he had practically arrived at the conclusion that he could with financial benefit sulphur his bees in the fall, take all the honey, buy pound packages in the spring, and make more money than by keeping his bees over. He lives away up in northern Michigan.

MR. KROUSE: I started buying package bees as an experiment, and it turned out so well that I followed it up. If I could always buy bees for \$3.25 it would not pay me to winter them. But of course you cannot always depend on getting the bees, and therefore I would not advocate relying on them altogether.

MR. EYRE: I got a number of packages, and in them were a great many drones and a great many dead bees, and I doubt very much the advisability of buying package bees.

THE CHAIRMAN: I never had anything pay as well as the package bees. I bought sixty packages, and they did not come in the very best of condition. I could not say that there were any drones among them. Last year they gave me the very best crop of honey I ever had.

A MEMBER: It appears to me that a great deal depends on the kind of bees that are sent to you and the way they are sent.

MR. GRIMLEY: I think one of the important points is to find out which railway will bring them along in the shortest possible time. The post office may be able to solve the problem.

MR. WOLTZ: I would like to hear from the men who have some better plan of increasing the bees than by the pound package.

MR. CHRYSLER: I did not intend to throw cold water on the package bees. It is all right as a speculation if it comes through, but if we could buy bees here I do not think it would pay to buy them from the South. I think one great reason why we are doing more in the pound package business is because we have more enthusiasm in the spring, and we want to get the bees then.

MR. KIMBALL: I entirely agree with what Mr. Chrysler has said in reference to the package bees. If we require more bees we should be able to get them at home. I would prefer to divide a good colony of bees in August and winter two colonies instead of one. We winter our bees inside at a high temperature, and I prefer a small cluster to a large one.

PROF. B. N. GATES: I am very much interested in making a centre for beekeeping at Guelph, unifying the beekeeping interest of the Province of Ontario. I want to have the Inspection interest there, The Short Course, The College Course

proper, Instruction and Experimental Work and Field Work and Extension Work. I have been doing all these things. Each one of them is a job for a man, but we do a little along each of these lines. I was trained particularly for experimental work. When I went to Washington for the Government I was working there on experimental lines alone, and I like that sort of work. I want to do some experimental work here just as soon as we can get things in order. From what I have observed there is room here for work of that kind. I do not like the map that hangs over my desk. It is burdened with yellow and brown pins, showing where there is European and American foul brood. That hangs over me showing what work there is ahead of me this summer. We are going to tackle the job and try and clean up some of the disease.

QUESTION DRAWER.

(ANSWERED BY J. L. BYER, MARKHAM.)

Q.—Would you advise buying bees in old hives for the coming spring or buy pound packages?

A.—That would all depend on the price at which you could buy the old hives. If I can buy the bees in old hives right I would prefer them to the pound packages.

Q.—What is the right price?

A.—That is a question. Buy them as cheaply as you can.

Q.—What is the best time to re-queen a weak colony?

A.—A colony might be weak and not require re-queening. It might be caused by conditions over which the queen had no control. Replace a *poor* queen as soon as possible.

Q.—Which is the safest way to introduce a new queen?

A.—There are plans that are almost absolutely sure, but the question is whether it is worth while to go to all that trouble. I think the cage method is as good as any. Be sure that your colony is queenless. If you have a real valuable queen, take a comb of brood, just hatching, shake all the bees off and place them in a super over a strong colony giving queen to hatching bees on this comb, with a wire cloth at the bottom of super to prevent them getting up. The young bees will not injure the queen. After a few days, make opening in screen to allow all to unite.

Q.—Should frames of brood be spaced together as close as possible in the spring or spaced wider than one and three-eighths?

A.—One and three-eighths is the orthodox spacing and nearly all hives are made with that spacing. A large number of beekeepers give an inch and a half and like it best. Mr. Dadant claims that by the wider spacing you control swarming better.

Q.—Is there a duty on honey coming in or going out of Canada?

A.—There is a duty on honey coming into Canada of three cents a pound. I am told it is ten cents per gallon, on honey going into the U.S.

Q.—Would a high tariff be a benefit to the Canadian beekeeper, or not?

A.—You will have to draw your own conclusions.

Q.—Why not make increase after the honey flow by dividing strong colonies in two instead of buying packages?

MR. HOLTERMANN: If you have a large hive and a good queen at the end of a strong flow, split the hive in two; half the combs on one side and half on the other. Move one-half to another apiary. In two or three days you can find out where the queen is, and then introduce a new queen to the half that is queenless.

MR. BYER: I hesitate to divide up very much late in season, for out door wintering, but Mr. Holtermann has had a large experience.

MR. KROUSE: I have made most of my increases in the same way.

MR. HOLTERMANN: I would not do that till the close of the buckwheat flow. The age of the bee is measured by the work she does, and when there is no honey flow on, the bees are not working, and are not getting any older.

MR. BYER: After you make the division be sure that they are strong enough to winter.

Q.—Do you know of any disadvantage in the use of the metal spaced frame—Root pattern?

A.—I do not like spaced frames, especially for extracting purposes. I like the wide spacing so that I can have a chance to crowd the frames together, with a self spacing frame you cannot do that. Metal spacers also interfere with the uncapping knife.

Q.—At how many degrees of heat should the honey be kept to prevent it from granulating, and what is the best method of heating it after extracting?

A.—140° for 40 minutes. You can go to 160 but you must not go over that.

PROF. GATES: There is quite a difference of opinion on that question. We find that some honey will discolor at 160° if it is held there for 30 minutes; 140° or 150° is a better temperature if it is held at that for 30 or 35 minutes. There should be some careful experiments made on that line.

MR. DUNN: We have found that honey will regranulate after a time, even if you heat it up to 160°. If you heat it under the rays of old Sol it will not regranulate.

Q.—How about the color?

MR. DUNN: If you do not overheat it it will not change color.

Q.—Did anyone ever try throwing the honey out of the cappings by centrifugal force?

A.—I never did.

MR. EVANS: I take the honey out by "physical force," I press it out.

Q.—Can Italian queens be ordered through the Beekeeper's Association?

A.—Yes.

Q.—Is there an electric capping knife for sale yet? If so, where can it be got, and what is the price?

A.—I don't know.

Q.—What bee escape is the best? Have not had much success with them. Sometimes will be all down and the next one will be just the same as when I put it on, never any brood above.

A.—I have never used very many bee escapes until last year. We used them last year at the Fenelon Falls yard. I used them with escapes at each corner, the same as made by the Ham & Nott people, and most of them worked very well.

THE CHAIRMAN: I have used bee escapes for a great many years, and the principal trouble I find is that the springs are not properly adjusted. If the spring is not properly adjusted the escape is no good.

MR. HOLTERMANN: We have been using the wire cloth bee escape for some years. I would not use the solid board bee escape, because it has no ventilation, and you are not safe in putting more than one super on top at a time. I believe that pollen in the super has a tendency to keep the bees there longer. I prefer to put the escapes on during the day time.

MR. HABERER: Several years ago they made a better bee escape than the one they are making to-day. There was a lower space in the centre, and if there were one or two dead bees they would be in that space.

MR. J. W. CRAIG: The present escape costs a great deal more than the one referred to by Mr. Haberer. This escape is made exactly the same as the one made on the other side.

MR. KROUSE: A great deal depends on when you put on the escape. If you put them on in the evening they do not go down so rapidly.

PROF. GATES: Make the escape round, and make it fool proof so that it cannot get clogged. The best escape I have seen had springs all around, and if one got clogged the other worked.

MR. CHRYSLER: No bee escape will work under certain conditions. If you have a lot of empty combs the young bees will go up there and stay there, and it will take them a long while to get down. When I take off honey late in the season, I go to four hives, and smoke them sufficient to take off the supers and take them off, full of bees. I take the four off, then place them one on top of the other, and leave them there fifteen minutes. I keep on taking off the supers. Then in fifteen minutes when I come back, these bees have found strangers in the next super, and if you just jolt it the bees will drop off, the remainder of the bees you can take to the honey house and they will all be gone in an hour.

MR. MYERS: I never could take my bees into the honey house, they will gather in clusters around the corners of the buildings.

MR. HOLTERMANN: The time to put the bee escape on is just when the bees are going to go out. If the escape is put on the night before, the bees become restless.

Q.—Can a colony of bees be cured of American foul brood in the hive, without taking them out, by just taking the combs and honey from them, and giving them foundation to build up on?

A.—I presume that means to give them one shake instead of two. I would say yes, but often they won't be cured. It is better to give them two shakes, it is the second shake that does the work.

MR. NEWTON: I believe in doing it thoroughly.

MR. HOLTERMANN: If I find a single case of foul brood in a large apiary I use brimstone.

Q.—How do you get the bees to put the honey into the little sections? My bees won't work in them.

A.—You must have very strong colonies, and not too large hives. Large hives are not conducive to comb honey production.

Q.—Is there any possibility of having foul brood transmitted through the medium of the foundation wax?

MR. CRAIG: There is no possibility of any germs being left in the wax after it has gone through the process of manufacture. Experiments have been conducted along that line and foul brood never developed.

Q.—Can anyone tell where there is a market for honey just now?

A.—There are plenty of markets, but I do not believe you will get the high prices that prevailed some weeks ago.

MR. WEIR: There has been a gradual drop in prices in the United States of from one to three cents in the last four weeks. I think it would be wise to clean up any honey you have got.

MR. BYER: I would not advise selling at too low a figure. I know one man that was offered 27c. for 15,000 lbs. a few weeks ago. But since the export has been stopped there has not been any demand.

IS FARMING AND BEEKEEPING A GOOD COMBINATION?

R. G. HOUGHTON, BRADFORD.

I do not know why I have been chosen to talk on this subject. I am sure it is not because you want to hear a great flow of oratory on this subject of Farming and Beekeeping as a combination, as I am no orator, so it must be that some one knew I had considerable experience along this line and that what I may say will be based on facts gathered from actual experience in farming and beekeeping. I wouldn't like to give anything but facts, as I can't say who may be looking for help in this combination business. My experience has been gathered from a life time of occupation in farming and beekeeping, and then beekeeping and farming; and in these years I have learned that there are many advantages and some disadvantages in the combination business. A man has a life time to live, be it long or short, and I have come to the conclusion that real living is not measured by the amount of money a man may accumulate in that life time, but by the possession of a certain amount of wealth and a large percentage of pleasure, and being engaged in a business that develops a man and makes him a good citizen of the community in which he lives.

Five years ago I was asked to give a talk on the same subject and I was prevented by sickness, and I must confess that had I given that talk then, I would have said it was a poor business. But since then I have changed my mind, and I have arrived at the conclusion that beekeeping and farming is a good combination for some men; but it is a direct case of getting the right man in the right place. I am pretty safe in saying that nine fail where one will succeed. You ask me why? Because in the first place a farmer is not a beekeeper just because he owns a hive or two of bees. In the second place he lacks experience in the handling of bees to make them produce honey. Third, he is afraid of getting stung and generally before his combination business ends he is stung, as I have it by their own confession. Fourth, a farmer has not the time to spend in learning to keep bees profitably, and if he is desirous of entering into the combination business it would pay him, and pay him well, to spend a month or two for at least a couple of years with a successful beekeeper, or else take advantage of a couple of terms where Short Courses are obtainable and then he receives a promotion and becomes a beekeeper-farmer and not a farmer-beekeeper, his first interest should be in the bees, and unless he can interest himself in beekeeping he had better sell them at once at some financial loss to himself and not become a menace to his neighbor beekeeper. It is much easier to get help to farm than it is to get any one to manage bees profitably for a farmer, because when a man becomes capable of running a bee yard, it is generally himself that he runs it for, as the amount

of capital required is small for a beginning and mankind in general likes to be his own boss. I said at the beginning it had many advantages and some disadvantages. 1st, beekeeping alone for a man of only moderate means is very uncertain and some times very disappointing. He has many things to contend with—foul brood of different types, bad winters, cold springs, a clover failure, and many more things which may put him out of business, whereas a combination business of beekeeping and farming will tide him over. Surely the two branches will not fail in the one year. One man can, with the aid of hired help for the harvest attend to 50 acres and 80 or 100 colonies of bees, and the profit is equal to about 150 acres of land, and to farm that amount of land would require help for eight months or at least \$400, which means a saving of about \$300, without board, to say nothing of the pleasure of being your own boss. You say why not keep more bees and do without any help? A man as a beekeeper may have reached his limit as a beekeeper when he has 80 or 100 colonies and yet he may have time to spare so the land fills up all vacant hours.

Then again the community may not warrant the keeping of more bees, and 80 may produce as much honey as 120, and he may not feel capable of managing an out-yard and has a hankering for the soil. So in this case the land proves very profitable, and makes him a business in which his very soul delights.

Where a man has a growing family I like the combination business, as some of the boys may take to beekeeping and in the end be the means of giving him a college education, and yet the lack of knowledge of the beekeeping business or the lack of ability may have stood in the way of the father making himself a professional beekeeper. I know similar cases.

I found out when I was a beekeeper only, and tried to do all my business with a Ford and trailer, that I often needed a horse or horses, of course the bulk of the work can be done successfully with a car, but in the winter or fall you need horses to haul your honey to market, your supplies from town, cans and late buckwheat honey, your fuel—coal or wood.

Your farm provides the necessities of life at cost, bread, meat, horse feed, poultry feed, and winter work to keep us healthy; also necessitates early rising, and early to bed, and early to rise makes a man healthy, wealthy and wise.

Sometimes a beekeeper finds himself or rather his apiary, lacking in the clovers or flowers to produce honey, and when he owns a farm of his own he stands with his hand on a lever that he can to a certain extent move to suit his needs. There may be an account of a fall in price of alsike, a falling off in production on the part of the farmers, and justly so from their standpoint, but a beekeeper-farmer may grow it still profitably as he gets two crops where they only have one. Buckwheat, while rather uncertain, has become worth while as a honey plant, and yet many farmers hesitate to grow it on account of the late harvesting it requires, and yet a beekeeper-farmer can afford to grow it and put up with the inconvenience, and it may produce a great deal of honey at a good price, and it is very easy to market. Barrels. And last, but not least, the sweet clover. If it is a good honey plant the beekeeper farmer has a chance to make a fortune or spoil a farm or spoil his honey business—what?

Let me sum up the situation in this way, the right man in the right place can and will make a success for himself and the community by engaging in the combination business.

MR. CLARK, Queensville: I live right in the country where they raise sweet clover, and it is one of the very best crops. My son bought a rundown farm and

sweet clover helped to make it a good farm. Sweet clover will grow anywhere. We kept sheep on this place and they would eat up every bit of the sweet clover. Sweet clover will remain green until the snow falls, we put a lot of it on top of a straw stack and the horses and cattle and everything reached right up to that clover and ate it all up. Some of it got into the manure and the cattle and horses hunted for it there. Sweet clover makes the very best honey and I can sell it for more money than any other honey. Sweet clover, golden rod, and buckwheat makes good honey. I do not think sweet clover honey will granulate.

Q.—Will Italian bees work on sweet clover?

A.—They certainly will.

MR. COUSE: I say sweet clover honey is not the best honey. I had fourteen acres of sweet clover this year three feet high. The bees worked there for three weeks and there is no doubt they made a lot of honey. It is not as good as ordinary clover honey. It has a greenish tint. It is a profitable crop for more reasons than one. It will make the land a lot better. D. A. Jones was a man that made us believe anything. He made the T. H. & B. Ry. believe that sweet clover was the best thing to hold their banks together, and they seeded their embankments to sweet clover. I paid the man that had the fourteen acres \$1,400 for his seed, and I made a profit on the seed and also got the honey.

MR. HARKNESS: We are growing a lot of sweet clover in our locality. It makes an excellent substitute for alfalfa. It must be cut early for hay. We find that the 10th to 15th of June is the proper time to cut it.

MR. MCNAUGHT: How many inches high do you cut it?

MR. HARKNESS: We cut three or four inches high, four inches is better than three because you will get a better second growth. The second time when we cut for seed we put the machine on and mow it like any other crop.

MR. HOUGHTON: We cut it with a binder and shocked it up like wheat and it did very well.

MR. WEBSTER: In spite of all that has been said I still think it is a pretty bad weed.

MR. NEWTON: I fail to see anything in it that is of advantage to the beekeeper.

A MEMBER: I think from a farmer's and beekeeper's standpoint that if the crop is worth \$150 per acre and if you can get a good honey crop as well, that it is a good crop to grow.

MR. KIMBALL: I am glad that I came to this convention; because possibly I am in wrong on this sweet clover question. I have an apiary in the best sweet clover district in Ontario. The honey I have been getting there has been the best honey I have produced. When I want a special pail of honey for some of my friends I get a pail of sweet clover honey.

MR. VICKERS: Three or four years ago I sold a merchant in Hamilton a ton of sweet clover honey, and he said he liked it; that it had a flavor that suited his taste.

MR. KROUSE: It is the hardest honey to handle I ever had to do with.

MR. HOLTERMANN: I do not believe all the combs are filled with sweet clover honey. It comes in after the other is extracted, it is a greenish color, and is not as good as clover honey. It is not fair to ask whether you would sooner have sweet clover honey than clover honey; because you do not get the one when you are getting the other.

THE MOTOR CAR IN THE APIARY.

E. T. BAINARD, LAMBETH.

There is nothing that will take the place of the auto in apiary work. It is mostly during the summer season when the roads are good that we have to work in connection with the apiary. During the winter when there is very little use for the auto it is no expense. The auto is very convenient for moving bees. The Ford car has been used more than any other for this purpose. I have used one for eight years. We find that the Ford car with a trailer will start off much easier than a heavier car. Either a two-wheeled trailer or a four-wheeled trailer is all right behind a car. The two-wheeled trailer is good for 1,200 to 1,500 lbs. If you want to haul more than that you must use a four-wheeled trailer. Last year we turned our old Ford into a truck which will carry 2,500 lbs. We prefer to have two springs instead of one because one spring is too heavy, and two springs are better for a hard tire. If you want to take an extra load you can put a trailer behind the truck. The truck is geared down to low speed and has extra power. Some use the auto for power purposes, I would not advise that unless you have the regular attachment. If you allow one wheel to remain idle it is not good for the gearing; it is better to get the proper attachment and have both wheels running.

Q.—How much of a load can you carry on the Ford car?

A.—In the regular Ford truck you can carry 2,500 lbs., and with the trailer behind we can carry two tons. I prefer the pneumatic tires for the front wheels because they are easier on the engine. You must have fairly good roads to use a car.

Q.—Do you find the trailer hard on the pneumatic tires?

A.—A great deal depends on the driver; you should start off carefully. It is better to have a 4 x 31 tire than the small tire and overload it. We had our truck built the right size for the supers, so that there would be very little play. It cost about \$125 to rebuild the car. The tires are the greatest expense. They were \$45.

Q.—How fast can you travel with the truck?

A.—With ours we can go ten to twelve miles per hour. Of course you have more pulling power, and can pull almost anything.

MR. DUNN: They are making trucks out of the ordinary Ford by cutting them right in two and putting in another housing. It can be done for \$35 or \$40.

MR. KROUSE: I used one set of tires for two years. I have a two wheeled trailer, I do not approve of the four wheeled trailer.

MR. HOLTERMANN: The motor-truck people absolutely refuse to put down a one ton truck without the pneumatic tires; because they say it affects the life time of the truck, for a light truck it is absolutely necessary to have a pneumatic tire.

BEE DISEASES.

CHARLES STEWART, INSPECTOR OF APIARIES, 3RD DIVISION,
JOHNSTOWN, N.Y.

I was very glad to receive such a kind invitation to speak to you this afternoon. Having been in touch with bee diseases, and being an expert of the Department of Agriculture for twenty years, and having had some experience previous to that time, perhaps a few words along the line of bee diseases will not be out of place. I felt a little handicapped in coming here at the present time, for the reason that you have secured the services of Dr. Gates who has done very good work in the State of Massachusetts, as well as at Washington. In him you have a valuable source of information at your disposal. He has succeeded in cleaning up the State of Massachusetts from bee diseases. T. B. Terry once said that if he could destroy all the potato bugs he would not destroy them because that was what made his raising potatoes profitable. I had two seasons work in trying to protect my apiaries from the ravages of European foul brood. I could never trace the origin. I do not think it is nearly as virulent as formerly. At that time the odor was so great that if you came near the yard you would get that rank smell. We early realized that Italianizing was the proper thing to do to cure the disease and prevent its spread. The first time it was vividly impressed on my mind that Italian bees were the best, was when a friend complained that his bees were not doing well. He lived some distance from me, and I went there thinking that I might be of some use to him. I found long rows of hives in an orchard. There were wax worms weaving webs around them. They were in bad shape and of no value whatever. The last hive in the row had the supers full of honey and the bees were all healthy. This apiary was all black bees, with the exception of that one colony, and that was a colony of Italian bees. I said to my friend "What is the cause of this?" I did not understand it. I said to him "Where did you get this queen?" He said "Do you remember giving me a queen last season?" and I said "Yes." It was an Italian queen. He created a small apiary from this one colony, and they never showed any disease, and that convinced me that the Italian was the type of bee to use. Now you might ask me if I thought that colony had European foul brood, and I would tell you that I thought they did, because certain cells were empty, but there was no diseased larvæ, the bees would take it out immediately it showed the disease. After that we began to publish the idea of Italianizing. Mr. Alexander moved all his bees home to die. He had 700 colonies in one place, and you know it would be difficult to feed them although there was plenty of buckwheat. He had to divide them up and he succeeded in curing them by re-queening. Formerly we practised shaking for European foul brood, and a second shaking about four days later. We do not advocate shaking any longer, but we advocate re-queening with a vigorous strain of Italian queens. If your colonies are weak you have to do some uniting. You cannot save a weak colony by re-queening. When you introduce the new stock you will find that they will clean up very rapidly. Do you know that a lot of the queen breeders have gone out of business? For the past year or two Southern queens have been of a poor quality. We have found a lot of mismating in Southern queens. It may be that they are not careful as to their neighbors. We have now arrived at the point where we must rear our own queens. We have to get the good stock to rear

our queens from. I do not think that queens that are sent through the mail are ever so good as if they were not sent through the mail. If you could rear the queens in your own yard they would be much more satisfactory. It may be that something we rear ourselves we value more highly than something we buy for a dollar.

We tried the system of county agents for a while. One system of inspection that we found to work was to get a man that had quite a large interest in bee-keeping, and get him quite conversant with the method we adopted of handling disease, and then ask him to look after his neighbors. That was at a time when we had more work than we could handle. That system worked out very well. But one of them said to me, "I cleaned up all my neighbor's bees, but if I had to do it over again I would look after my own bees first." He said his neighbors furnished his customers with honey. If you find a strain of Italian bees that are good resisters of disease, that is the proper strain to use. I have a strain of bees that wintered outside in the mountains, they were good resisters and strong bees and I find they are a good strain to breed from. It is good business to take the best strain of bees we can find and breed from them.

I remember one prominent beekeeper who put moth balls in his hives. I asked him the result, and he said the wax kept getting around the moth balls and it was a failure. I told him that if he put anything in the hive strong enough to kill the foul brood, he would kill his bees. We tried disinfecting but it does not prove successful. When the disease passes over a certain territory the weaker bees pass out first and they leave the strong bees, and that eliminates the poor bees, and in that way when once a territory was cleaned up, the disease did not appear again because the bees could resist it. I bought a car load of bees from Mr. Ellwood because he had never had the disease, but I found out afterwards it would have been better if I had bought them from a territory where they had already had the disease, because then I would have got a strain of bees that had resisted the disease. We have to give credit to the bees for their resisting qualities. I do not like to shake for foul brood, because the bees scatter around too much after the second shaking. We got good results in the hands of an expert by shaking once. I do not think it is wise to advocate that generally. One of the important things in connection with that is thoroughness and proper care. Mr. Ray has been carrying out a lot of extension work in New York State. He has organized seventeen local societies. We have been working very hard to eliminate the black bees. We have enough of the disease to keep us busy all the time. If there are any questions that you would like to ask I hope you will feel at perfect liberty to do so. We have had good success in treating bee diseases by allowing the bees to escape through a bee escape, but it should be done by an expert.

MR. MYERS, Stratford: I bought a few colonies of bees that had foul brood because I wanted to get them out of the district, and about the first week in October I shook these bees on foundation, and then I fed them sugar syrup until they were full. I think if you use foundation instead of combs you will find it is successful.

MR. STEWART: Where the disease has once passed over a district, you will find that the beekeepers in that district are better beekeepers than they ever were before. They were forced in the first place to get better bees. Some of them used to boast about having combs twenty years old. We all know that is no good now. They use better combs and produce finer honey. They have better methods for running their apiaries, and they have better methods for marketing their honey. Hav-

ing inspectors going about the country has a tendency to raise the rank and file of beekeepers in the district where the inspectors go. What we need is 90 per cent. education and 10 per cent. inspection. It is really largely a matter of education. A convention of this kind, where views and methods can be exchanged is one of the best methods of education that can be adopted. We have used thousands of pounds of wax from foul brood colonies and I am sure you will get no infection from that source. By the time the wax gets into the foundation again there are no spores left. We tried a number of experiments on the spores inside the hive. We scraped the hive and sent the scrapings to Washington so that they might make cultures from these scrapings, and they were able to prove beyond a shadow of doubt that the sun had a wonderful effect in curing the disease. They got very few cultures after the sun had been allowed to shine on the hive, and into the hive.

REV. JOHN MOORE: Are there conditions that give rise to this disease?

MR. STEWART: We had a meeting in New York State, and the late Mr. McEvoy was there, and we tried to arrive on common ground on a lot of these things. I always look back to those days with satisfaction. I will say this: that a man may have his constitution in such a shape that he will become an easy prey to disease. We have never yet been able to prove that by dirty methods you can produce European or American Foul Brood; but you may bring about conditions that are favorable for fighting it.

MR. HOLTERMANN: I would like to hear something from Mr. Stewart about this disappearing disease?

MR. STEWART: About twenty-one years ago we began to have this trouble. We thought then it was some form of paralysis. We were very much alarmed, we had a very bad attack. Usually it came along just before the clover honey flow, and when it came on, it disappeared quickly. Sometimes it would last a week, and one or two seasons it reduced the bees considerably, but I never knew any hives to be destroyed, and I have failed to hear of any hives being destroyed by this disease in New York State. Dr. Phillips informed me that they have never been able to find any germs of fermentation in the organs of the bees, and it could not be from fermentation. We have found that by introducing a young queen the disease will disappear in that colony.

MR. COUSE: How often does it re-appear?

MR. STEWART: Nearly every year. This year it has appeared just so that you would notice it, on one or two days I would find a few bees on the grass.

MR. COUSE: Why have we been so long in catching that disease in Ontario?

MR. STEWART: Don't you think it has been here and nothing said about it?

MR. HOLTERMANN: Have you noticed any difference between bee paralysis and disappearing bees?

MR. STEWART: I do not like that form of question because I have an idea that this paralysis is related to the disappearing bees. I have not any authority to prove that. It is only an idea in my own mind. What has become of the old fashioned bee paralysis? We do not find it, but we have got this other trouble.

A MEMBER: When the bees clean up with the new queen; will they stay cleaned up for another year?

MR. STEWART: No, that only relieves it for the time being.

Q.—Does the disease usually follow a long spell of wet weather?

MR. STEWART: No, it does not seem to be caused by weather conditions. I have tried to prove that that was the cause. I thought at one time it was caused by fermented honey, and I sent samples to Washington, and they said they could not find any germs of fermentation. It seems to be some abdominal disease of the bee.

MR. HOLTERMANN: I first noticed this disease some eighteen years ago. Bee paralysis is certainly not the proper name of it. Bee palsy would be a better name for it. The bees get up on chips and other things in the bee yard, and there seems to be a trembling condition. I was getting some very fine queens at the time, and after I introduced them it disappeared and did not reappear the next year. I noticed a different condition a year ago last spring, it was so serious that I began to get quite anxious about it. The wings of the bees were extended and they looked as if they were in the greatest agony. I had my bees inside of a high fence, and I pulled it down so as to let the air circulate more freely and in a very short time it disappeared. That led me to the conclusion that dampness had something to do with it. Last year was comparatively dry, and I had only a few cases of the disease. Miss Fowls at Medina told me that her father's bees had the disease, and his apiary was on a hill with plenty of circulation.

MR. STEWART: This year we had the most wonderful clover bloom I have ever seen, and yet we had constant rain and then the sun would come out again. We are going to have a conference on this matter, and Dr. Phillips is going to be with us, and we want Dr. Gates to be present, and we hope to have some results.

A MEMBER: Does the disease always appear just before a honey flow?

MR. STEWART: Our bees have always had it just before a strong honey flow. It is possible they have had it in other places at other times.

MR. HOLTERMANN: I thought I saw a slight trace of it in September last year.

A MEMBER: I live in the Georgian Bay District. My neighbor had it in two hives this year. I thought it might be caused by the bees running down in vitality. He had not secured any new queens for two years. I did not hear of this disease until I got the report of this Association. I tried to get a new queen and put into these hives. Dozens of men used to keep bees in our district, but they are out of it now. I examine my own bees twice or three times a year and look after them properly, and I have very little trouble.

MR. STEWART: We are sure it does not come from degeneration in the bees. We will have to look somewhere else for it.

MR. BRUNNE, ARNSTEIN: May it be some sort of intoxication that the bees get from some source where they gather honey?

MR. HOLTERMANN: I was feeding granulated sugar syrup at the time.

MR. BISBEE: I had a case or two of that disease, and I first noticed it in the fall, amongst the strongest colonies I had.

A MEMBER: Did you ever find it break out before you put on the supers? I found that when I put on my first supers in the spring I had trouble with it, and also just before the clover flow. I attributed it to the fermentation in the honey left in the supers.

MR. STEWART: It could not be fermentation in the honey with us because we always have that cleaned out by the bees.

MR. KROUSE: There were full supers of good clover honey in the hives when my bees had it.

MR. W. A. CHRYSLER: How old the bees are when they are taken with this disease I do not know, but we do know that it is a disease of the adult bee. It seems to me that the nurse bee might use some pollen that contains some substance that might cause this disease in the bee after it is fully grown.

MR. STEWART: I have tried to connect it in that way, we have as yet not been able to find that that is the cause.

MR. SLADEN: The Isle of Wight disease is a disease of the adult bee, and it seems possible that this may be the same thing. I would not put much stress on these varying symptoms, because symptoms may vary in the same disease. Dr. White of Washington told me that this is a disease that burrows into the wall of the intestine of the bee. The spores of the *Nosema Apis* have been found by him buried in the gut wall. You may be sure that any parasite able to do that must have a great effect on the health of the bee. It occurs to me that it may live a harmless existence in the bee until it buries into the wall of the gut. It might grow during times when the honey flow was light and the bee had not great vitality. They say that this *Nosema Apis* is caused by stagnant water. If that is the case it might be caused when the bees were collecting water and not so much during the honey flow. The symptoms might not appear until the honey flow started. You must remember that a very serious disease of the adult bee has been raging in England for years, and it has the same symptoms as this so called disappearing bee disease.

Q.—Are the queens and drones affected?

MR HOLTERMANN: I have never seen a drone affected with any disease.

DR. GATES: I can say positively that drones are affected. I cannot say as to the queens. The drone has the same shaky motion and the shiny abdomen, just the same as the worker bee.

SECRETARY'S REPORT.

The total number of memberships in the Ontario Beekeepers' Association received during the year ending October 31st, 1918, is 930, showing a decrease of 183 in the year. Four hundred and twenty-five of these memberships came in from affiliated societies, and the balance of 505 by single subscriptions.

Haldimand Association had less than the required number of members, and therefore has been dropped from affiliation for the time being. Essex County Association has retaken her place among the Affiliated Associations.

LIST OF COUNTY ASSOCIATIONS AND MEMBERSHIPS, OCTOBER 31ST, 1918.

Brant	25	Parry Sound	11
Bruce	24	Perth	5
Carleton	20	Prince Edward	14
Essex	12	Renfrew	11
Grey	11	Russell	14
Haldimand	8	Simcoe	1
Halton and Peel	16	Temiskaming	12
Huron	8	Victoria	17
Kent	19	Wellington	33
Lambton	13	York Co.	8
Leeds and Grenville	13	Toronto City	53
Lincoln and Welland	13		
Middlesex	13		425
Oxford	28		

The membership of the affiliated societies show a decrease of 39 members. The acute war conditions of 1918 are largely responsible for the decrease, and with a return to normal conditions the membership list will, no doubt, more than recover from the setback.

The Queen order business was continued during the year. Members purchased 764 queens at an average price of eighty-four cents each. One hundred and

fifty-nine orders in all filled. The demand for queens during the past season was exceptionally heavy. Breeders also reported very backward weather conditions during May and June, and were from ten days to three weeks behind schedule in filling their orders.

In accordance with the resolution adopted at the 1917 convention, a list of Pound Package Shippers, giving prices quoted on 1-lb. and 2-lb. packages, was compiled and sent to the members. Although this list was not issued until March 15th, fifty-nine members placed orders through the Association for 87 1-lb. and 316 2-lb. packages. All moneys received were placed in the bank and the orders forwarded to the shipper as in the case of Queen order business.

Arrangements for quick customs clearance were made, but this failure of shippers to fill orders necessitated the return of moneys to the beekeepers. Members of the Association fared much better than many beekeepers who ordered direct from shippers and sent remittances in advance. Some of them are still waiting for refunds. Parcel-post privileges have been secured for packages of bees, but enquiries for 1919 shipments do not indicate great enthusiasm over the new arrangements by the shippers. The available supply of Package bees this season is very limited, judging from the replies to our enquiry of shippers.

MR. WEIR, GUELPH: In connection with this report I might mention an experience we had during the past year. We have had the experience of the County Secretaries in carrying out our demonstration work. It must be remembered that the county secretaries work on a voluntary basis. They get absolutely nothing for what they do. I think many of you will agree with me, seeing that the secretaries are so diligent in their work, they should be encouraged and they should have a voice in the affairs of the association. We have only one way of doing that and that would be by making these secretaries members of the association and directors of the association. With that suggestion I would like to leave the secretary's report for adoption.

HORTICULTURAL EXHIBITION.

MR. COUSE: When the war came on, it was thought not advisable to carry on the Horticultural Exhibition. There is still a balance of funds on hand, after having given \$600 to the Red Cross. I am President of that Exhibition, and I did not know whether I was dead or alive, but I am glad to be able to tell you that the Exhibition is still alive and will be held this fall. I have learned to-day from Mr. Hodgetts that the Arena that you have heard about will be erected in the Exhibition Grounds, and the Horticultural Exhibition will be held there. You may now get ready with the idea that there will be an exhibit. It is our duty now, having gone through the war, to take things up more seriously and go on with greater energy than ever before and make this the greatest country in the world. The part this Association took in the Horticultural Exhibition was a credit to the Association, and I have no doubt you will keep up your end when the time comes.

MR. HODGETTS: The directors at their meeting this morning sent on these recommendations to the Association: "That the beekeepers combine again with the Fruit, Flower and Vegetable men in the holding of a show this fall, and that the Association hold its convention at the same time as was done in years gone by, and that the following committee represent the beekeepers on the general executive: Messrs, Couse Byer, Krouse and Sibbald. Mr. Couse was honored in 1914 in being appointed President of the Exhibition Association, and he still holds that office, and I believe will hold it for the coming year. I think that is the best committee we can select. It is necessary to have men who live near Toronto in order to save expense.

MR. TILLSON: I am told that the reason the exhibition of honey at the Detroit Fair is made successful is by the fact that all the beekeepers send in the honey to a central committee who buy the glass and bottle the honey and arrange it at the exhibit.

MR. COUSE: That is exactly what has been done here.

MR. EVANS: I think it is a very good idea and I move that this recommendation be adopted.

MR. VICKERS: I have pleasure in seconding that motion. Carried.

Q.—How is it financed?

MR. HODGETTS: My impression was that the Association gave us a grant of \$500 and that the Ontario B. K. Association paid anything in excess of that.

MR. SIBBALD: That allotment is to cover the expense of buying the glass and arranging the exhibit.

REPORT OF HONEY CROP COMMITTEE.

H. G. SIBBALD: We met this year on the 8th August, that was rather late, but the crop was late. It is impossible to make a report until the season is over. The average report was 62 lbs per colony. It always seems strange to me that the figures are about the same each year. The only way I can account for that is that if there is a poor crop in one part of the Province there is a good crop in another part and they average up. It was thought that we should put the price higher, everything else was higher. It was put higher than ever before, 24c. to 27c. That is the wholesale price: Later on we sent out a report on dark honey, and the price recommended was 20 and 21c. Someone will say the report was late and we had sold our honey before it came out. The speculators are always ready to take advantage of you if you let them. No dealer starts to buy any product early unless he thinks there is going to be a shortage. It has been suggested that the director and one or two should form a committee in each district and report on the crop. If the director is a live man he could tell by reports from his neighbors how the crop will be in his district. I do not think we will see these prices again for sometime, but I expect that we will get good prices for our honey next year. It would not do to get panicky about it and sell your honey for 10c. next year.

MR. COUSE: Last week a man informed me that he was getting orders for next years' maple sugar crop and getting the price. What is the difference between honey and maple sugar? I would like to know how we could get the price of honey set now for this year.

MR. HOLTERMANN: We are now taking orders for honey, and we have quite a number of them. The Dominion Cannery take orders for goods at prices not set,

and when the time comes that the price is set, if anyone thinks it is unreasonable they can back out of it. We have 900 stocks of bees, and I think we can claim that we are as large producers as anybody in the Province. A great deal of honey is sold before the committee fixes the price.

A MEMBER: The crop report is too late to be of any use to our district. The small beekeepers are all sold out before the report of the crop committee is received.

ADDRESS.

HON. G. S. HENRY, MINISTER OF AGRICULTURE FOR ONTARIO, TORONTO.

I am called on to say a few words to this convention of men and women who are engaged in an industry that I know very little about. Farming is so diversified, there are so many side lines, that it is not to be expected that any one man could cover the whole field. I have never been a beekeeper. I have had one or two hives, but they disappeared, and I did not really know what happened to them.

I am pleased to see such a large turnout here this afternoon. It is an evidence that the beekeeping industry is not of small importance. Anything the department can do for you we will be pleased to undertake. Possibly we do not give you as much monetary assistance as you would like, but that I think is largely from the standpoint that you have not placed your case just as clearly before us as you might.

There has never been a time in the history of this Province when the people generally and the Government were more sympathetic to anything in the line of agriculture. That is one thing the war has done for us; it has shown the value of agriculture and the production of foodstuffs generally. They have begun to appreciate the fact that foodstuffs are a very vital thing when we come to grips and interfere with the average avenues of production and distribution. The consumer is vitally interested: he wants to know what is the matter with production that it does not keep up. He is inclined to tell us that we are all profiteers and that we are all making fortunes and at the same time he is anxious that further production should go on. I am sorry that I have not had a chance to drop in and hear your discussions, but the Session is approaching and for that reason my time is fully taken up. I must again congratulate you on the enthusiasm shown in the numbers that are in attendance and trust that the beekeepers will continue to prosper.

MR. EVANS: I have great pleasure in proposing a vote of thanks to the Hon. Mr. Henry. It is not the first time that he has addressed the beekeepers. When we met in the old County of York Chambers, Mr. Henry held a much higher position at that time. He was Warden of the County of York, and he addressed us at that time. He has given us a very good hint that if we haven't got what we want it is because we have not asked for it. Mr. Henry is a working farmer and is a credit to the farming community. He has made a great success of his business and I am glad to know that we have him as Minister of Agriculture.

MR. HOLMES: I have much pleasure in seconding the motion. It is gratifying to know that the Hon. gentleman has time amid the multifarious duties that devolve on him, to come into our meeting and say a few words of encouragement to us. He assures us that we will get what we want when we place it in the proper

way before him. I do not think we should let the grass grow under our feet, I think we should go, and tarry not upon our going.

THE CHAIRMAN: This is the second time that I have had the pleasure of hearing the Hon. Mr. Henry; I happened to be in Hamilton this winter at the Board of Trade meeting there and he made an address on that occasion.

The motion carried with applause.

MR. EVANS: At the last session of this Association, The President Mr. Couse and Mr. Sibbald and myself were appointed a committee to interview Mr. Creelman, Acting Minister of Agriculture, as to the appointment of a successor to Mr. Pettit; I am sorry that Mr. Henry was not Minister of Agriculture at that time Mr. Creelman thought that an effort should be made to increase the number of beekeepers. I told him that an increased number of small beekeepers would not increase the amount of honey produced. If you take one hundred hives and give them to an experienced beekeeper he will have a surplus of honey for the market, but the same number of hives in the hands of people who did not understand bees might not produce any honey for the market. If they did not attend to the bees in a proper way they might be a menace to others who had a large amount of money invested in the business. Mr Creelman seemed to agree with us. We did not know of a good man who could give up his business to accept the position. The appointment has now been made, and we are out of business as a committee.

REPORT OF APIARY INSPECTION, 1918.

Q.—How far west has European Foul Brood got?

A.—It has got as far as Haldimand. It has also got east of Toronto. There is one case at Meaford. The report was that it was in Brant county but on investigation it was found not to be so.

MR. VICKERS: Define the difference between European Foul Brood and American Foul Brood?

A.—There is a bulletin sent out by the department that describes the disease accurately and plainly.

MR. FRETZ: European Foul Brood is on the border of Lambton County in the State of Michigan.

THE CHAIRMAN: I understood it is at Ottawa and in Quebec.

MR. GRAINGER: There is an article being put up now known as Honeyoleine. I understand it is manufactured in Montreal. I think we should take steps to see that our product of pure honey is protected against articles of this kind. That is a matter that should be looked into.

MR. KROUSE: They advertize it in Guelph as having 40 per cent. of honey in it.

MR. HOLTERMANN: I am interested in a wholesale house, and a traveller from Quebec brought me in a sample of this stuff. There is some honey in it, but if you would figure the price of glucose, the cheapest ingredient you can buy, you will come to the conclusion that there is not much honey in it. I think Mr. Grainger is right. We are entitled to have a law for our protection against things of this kind.

THE CHAIRMAN: The officers were elected by the directors last evening and they will be the same as last year with the exception of the secretary who will be Dr. Gates.

MR. HODGETTS: The matter of the premium to be given by the Association was up for discussion by the directors, and they decided to leave it to this meeting. Do you prefer receiving the present premium, *The Beekeeper* or a queen bee?

MR. COUSE: I move that we accept *The Beekeeper*.

MR. EVANS: I second that motion.

MR. EYRE: I believe it would be better to make it optional to have *The Beekeeper* or a queen bee.

MR. LOCKWOOD: I am very much in favor of continuing the subscription to *The Bee Journal*.

MR. CHRYSLER: It seems to me that a central body like this should furnish literature. It would be all right for a local association to supply a queen bee, but not this Association.

MR. DUNN: The fact that *The Beekeeper* is not as good as we would like it to be is our own fault. I have not written an article for *The Beekeeper* for 20 years, but I will try and do better in the future. I think we should subscribe for it and do everything we can to help it along.

MR. SIBBALD: The Board of Directors recommended that this matter should be brought up at this time. It costs us \$250 a year for *The Canadian Beekeeper*, and our annual grant from the Government is \$700 and it was a question of whether we were paying too much for what we were getting.

MR. EVANS: If we do not take *The Beekeeper* we would simply be without a bee journal in Canada.

MR. SHARP: I think it would be better if they could improve the quality of the paper they use and show up the illustrations to better advantage.

MR. HABERER: For my part I would say let us continue to take the journal, a great many would have no use for an extra queen.

MR. EYRE: The question is how can we get greater value for our money.

The motion to continue with *The Journal*, carried.

MR. HODGETTS: The directors recommend that the annual fee be raised to \$1.50 per annum, and that all members become automatically members of the county and provincial association on payment of this fee.

MR. WEIR: I am going to take the responsibility for that suggestion. Every member coming into the Association at the present time actually costs it 60c. Every member that comes from a county association costs the Provincial Association 60c. You can therefore easily see that there is a limit to our membership. The Association has been receiving a great deal of assistance from the Department that it is not entitled to. We have 425 county members and a number of hard working county secretaries. They get absolutely nothing for their work. In every case they must charge \$1.25 or \$1.50, and if we have a \$1 rate I think it is unfair. The cost of *The Journal* has gone up to 85c. and everything else has gone up. The Association has taken up the buying of queen bees and package bees and sugar, and all these things are not done for nothing by the Association, it all costs money and the association gets no remuneration whatever. I do not think there should be any objection to advancing the fee to \$1.50. I stand sponsor for this motion on that score.

MR. EVANS: I do not object to the increase of 50c., but I do think that the Provincial Association should keep itself separate from the county associations. We should not dictate how much the County Associations should pay.

MR. NEWTON: If it were not for the secretaries of the County Associations the Provincial Association would not be as large as it is. I think it is unjust that we should only charge \$1 when they have to charge \$1.50.

MR. A. D. ALLEN: The County Association ought to be worth 50c. to any beekeeper.

MR. WEIR: The difficulty with the County Associations has been that they have not had sufficient money to make the county meetings interesting, and if we put through the motion to increase the fee to \$1.50 we will be able to make more liberal allowances to the County Associations.

MR. FRETZ: I think the County Associations should be part of the Provincial Association because without them we would not amount to a great deal.

MR. WEIR: Mr. Evans has brought to my attention a point that has been overlooked. When the fee of \$1.50 is paid the person will become a member of the Provincial Association and one County Association, and if he wishes to join any other county association he will have to pay the fee of that association or associations.

The motion to increase the membership fee to \$1.50 was seconded by Mr. GEORGE NEIL and carried.

A MEMBER: How will that affect members who have already paid their fee?

MR. WEIR: They will be in good standing until next year.

ADDRESS.

PROF. B. N. GATES, O.A.C., GUELPH.

The first thing to which I wish to direct your attention is the fact that we have two wax presses at the College that we will dispose of at a discount. They were used for demonstration purposes, and we are selling off the surplus ones.

We now have the privilege of shipping package bees by parcel post, and with that goes the prohibition of shipping combs. I think you will all be glad of that. You will know in a short time what bees will be available from the south. There is a little uncertainty as to how the bees are to be cleared at the customs, and you had better inquire at your home town as to that in order that there may be no delay in delivery. It is the general opinion that the bees will come through better by parcel post than by express. I do not think we should go too far in the matter of securing pound packages of bees. In many of the States of the Union they have gone through that experience. I do not mean that the pound package has not its place, for it certainly has. But I would say to you "Don't gamble too much on the pound package." If you could only see some of the producers of bees in the south you would not like to take their bees; you are not always getting what you think you are getting. The reliable producer of the south will undoubtedly give you the best he has. I know of one producer who acknowledges the fact that he has to go out and buy bees. He is buying now to supply you in a month or two. Why cannot you buy your own bees up here? Would it not be cheaper? I do not know the circumstances, but I have yet failed to see the place where, with a little ingenuity, one could not go out and get a few bees. It may cost a little for inquiry, but it would seem to me that full colonies would be the very best way of filling your spring demands.

Some beekeepers in the north have had experience with southern queens, and it is the general opinion that southern queens are not of much value. In some parts of Europe where the same people have lived together for years, and the people have hardly gone out of the district, not to any great extent at any rate, they have become adapted to that district. It is the same with bees. The beekeepers in that district become specialists in bees for that district, and the bees are specially adapted for

that particular district. It is the same with the southern bee; they are adapted to the southern latitude conditions. I venture to say that in time we will have a New York bee, and a California bee and a Canadian bee. I think we should keep in mind the fact that we must have a race of bees that will adapt themselves to this locality, and when we do that the bringing in of southern bees will stop. The queen breeders are going out of business, because it does not pay, and the time is coming when you will have to be your own queen rearer. If you are going to rear your own queens it is time to begin to gather in your best stock for the purpose of rearing these queens.

I venture to say that Canada will see more European Foul Brood before it sees less, but that does not worry me at all, because I like European Foul Brood. I do not like American Foul Brood, but the other can be controlled without a great deal of loss. It can be controlled through the queen. It is essential that we should select the stock for the control of European Foul Brood. I would like to see you raise Ontario bees. I notice that you put on your goods, "Made in Canada." Why should you not "Make Bees in Canada"? We had to do that in Massachusetts. One man near Boston has forty acres of cucumbers under glass, and he uses an enormous number of bees, and these bees were made in Massachusetts. We had to do it. Several beekeepers started in to do nothing but raise bees, and they supply the cucumber growers with the bees.

The presumption is that you will be able to get queens in the spring, but it is just as well to be prepared for looking after our own requirements.

I do not know of any one thing that has raised the level of beekeeping and raised the level of honey in the public estimation like the Government action in July, 1917, when the telegraph crop reports went into effect. It brought the beekeeper into notice. It put honey on the level with wheat. It gave honey a status, something it never had before in the United States. It never before was quoted in the market reports in the newspapers, and it had never been recognized as it is to-day. The duty of this market reports bureau is to pick up the current prices of honey as well as other things in the different large cities, and then it is telegraphed to Washington and retabulated and telegraphed to the different offices and they put it in circulation. I don't suppose any members here to-day, with possibly the exception of Mr. Holtermann, knows the price that honey is selling for in Montreal, and you do not know what relation the selling price in Montreal has to the price in Buffalo or Toronto. It will be possible for you to have that information right in your note book any time you desire it if you will only say so. It would mean that if you had some honey to sell you would know whether Toronto or Montreal or some other city wanted honey. If some office has to collect the market prices they make it their business to do that particular thing, and they can give you information that it would take you weeks to collect. I think that is one of the important things which can be introduced for your benefit in Canada.

Somebody suggested that you would like to know something about our inspection systems, what we have been doing in Massachusetts and elsewhere. I would be glad to answer any questions in that regard. If I were to tell you what we have been doing I might give you a lot of information that you did not desire and that would not fit in with your conditions.

MR. DUNN: I think Mr. Gates is about right in the matter of southern queens. It would be very nice to get them from the south if we could only get just what we want, but it is not always possible to do that.

MR. BYER: We would all gladly buy northern stock if we could get it. Why

could we not have a queen rearing establishment at Guelph? Why could we not have one at Ottawa? They could test out and breed a strain that would be immune from European Foul Brood. I do not see why we should not have a grant from the Government for that purpose.

MR. SLADEN: Ottawa would not be a suitable place for rearing queens, because there are a great many black queens in the neighborhood. An establishment could be founded in the country outside of Ottawa, where there would not be any black bees.

A MEMBER: I suggest that you put it in the southern part of Welland County you will not find any black bees there.

DR. GATES: You cannot expect to clean up European Foul Brood in two years, but when you come to the third year you will begin to see results. You will get the best resisting strain of bees from those that have cleaned up the disease. If you stamped it out altogether your stock would not be immune to it, but where you get a good resisting stock you can keep it down. I like European Foul Brood because it strengthens my stock and makes them a resisting strain, because they have to fight it. We know that it is only through disease that we can break it down.

MR. DUNN: Where we have had European Foul Brood for ten years, as we have had it in Welland County, we have the very best stock to breed from to resist that disease. What we want is queens bred in the south from northern bred queen mothers. If you can raise them yourself so much the better.

MR. CHRYSLER: Now we are in a fair way of getting rid of European Foul Brood and we will save money on these inspectors that we have had going about the country. I think we would do just as well without the inspectors and be our own inspectors. I believe we are getting more than we deserve in inspection work.

MR. BYER: What would you do with this situation? We have a number of apiaries and there are black bees all around us, and there is some black blood in our own yards. I expect in the spring to find a lot of these colonies infected with European Foul Brood, and I want to get queens for the colonies. It is not a very nice prospect to look to the losing of one third of our bees. If we could get some queens that were immune from the disease it would help us along.

DR. GATES: I would, as far as possible, take the queens from the yard where the disease was worst last year, and where the colonies did not show up bad this year. Stick to that kind of stock, because they have been through the mill, and have come out alive. Some of the beekeepers in New York State have reared queens for themselves and a few for their friends. If you can rear the queens yourself you will be ahead. They are not allowed to ship bees from a yard where they have had Foul Brood.

REV. JOHN MOORE: Is there any way, such as by licensing beekeepers, that we could eliminate careless men who keep black bees and let them get diseased?

DR. GATES: No, I have not heard of any such system in the United States

REV. JOHN MOORE: Where I live in Middlesex County, I happened to move to a town where they had Foul Brood, and there was a lot of expense in getting rid of it. It struck me that it would pay to have a protective association and buy out these careless men and prohibit them from keeping bees.

MR. WEBSTER: I have all the taxes now that I care about paying. I would like to ask Dr. Gates whether European Foul Brood can be permanently cured, or will it crop up again?

DR. GATES: I do not believe that it can be eradicated. Suppression is possible.

MR. DUNN: My experience has been that you may get rid of it, but if you happen to have a poor honey year it is likely to appear again.

THE CHAIRMAN: Whenever the question of Foul Brood comes up it is hard for me to keep my seat. I do not like European Foul Brood, and I hope we will be able to keep it down and get rid of it.

MR. DUNN: What is necessary for us to do to get this market report?

DR. GATES: I learn from Mr. Hodgetts, that you have a bureau of markets at Ottawa, and I think you could have this report if you asked for it. It should be put in the form of a resolution passed by this convention.

H. B. COWAN, Editor *The Canadian Beekeeper*. It is about five years since we started publishing a bee journal for you. We are publishing several papers "Farm and Dairy," Canadian Florist, Canadian Horticulturist, Canadian Beekeeper; and at the beginning of the war we were in excellent shape, reporting profits and feeling pretty good. When the war came the whole horticultural business of this country was shot through and through, and the farmers started to grow grain and beef. The result was that the rural company has been showing profits and the horticultural company has been cut in half, and we have had a deficit running to thousands of dollars. I simply tell you these things to let you see that we have been carrying on under difficulties. Mr. Chrysler has done excellent service and we would like to get more assistance from him and from other beekeepers. Our biggest difficulty is to get articles for the paper, and if you will help us out in that respect we will try to do much better in the future.

REPORT OF COMMITTEE ON RESOLUTIONS.

Your Committee on resolutions beg leave to report as follows:

1. We recommend that the names and addresses of all members of the Association be printed in the annual report.

2. We learn with deep sorrow of the death of our late esteemed and respected brother beekeeper, J. A. MARSHALL, of Binbrook, and recommend that the Secretary convey the sympathy of this Association to the family.

Moved by Mr. Vickers and seconded by Mr. Holmes, that the report of Resolutions Committee be adopted. Carried.

COUNTY ASSOCIATION AND WHAT IT CAN DO FOR THE BEEKEEPER.

R. C. FRETZ, FOREST.

Not long ago I met with the secretary of a newly-formed County Association. In the course of the conversation I asked the secretary why they had formed a county association. Here is his reply "I'll just tell you, Mr. Fretz, that the big honey buyers have been buying our crops now for some time at prices set by themselves, and we are going to put a stop to it. Then there is another thing, this foul brood business. We're going to look into that thing and get after it. I never had the disease, but there were others at the organization meeting who had, and I learned quite a lot about it. One fellow, who was a great reader and observer of bees, told me that he had been watching the disease for years, and had formed this

conclusion; foul brood is caused by decaying refuse and pulp from cider mills. He thought we should get a law passed to do away with cider mills that are within reach of apiaries, and then we would not be troubled with disease. Anyway, we are going to get after these things." All of which, ladies and gentlemen, goes to show that the County Association has a mission to the beekeeper.

What then is the purpose of the County Association? I should say that the purpose of the County Association is identical with that of its parent body, viz.; the Ontario Beekeepers' Association. Just as this organization, through its officers and appointed committees acts as agent for all the beekeepers of our Province, so I contend should the County Association act as an agent for the beekeepers within its borders. And just here let me say this: No County Association can do justice to its members without being affiliated with the Ontario Association.

Probably the most important work undertaken by the County Associations has been the support given the Agriculture Department in its co-operative experiments and demonstration work. There is a possibility that we beekeepers have fallen short of the mark right along this line. We all like to experiment, but experiments made by individual beekeepers are liable to give varying results, for the simple reason that dollars count. To get the very best results from experimental work we require plenty of time, plenty of help, and unstinted financial support, with a qualified director in charge. Now, ladies and gentlemen, let every one of us give the new Provincial Apiarist our whole-hearted support. There is no doubt that he will do greater things, knowing that the beekeepers are going to stand behind him to a man.

It is often impossible for the beekeeper to leave his home for a few days to attend the sessions of this convention. The County Convention is nearer to his home, so that in many cases he can drive to it. The exchange of ideas and meeting other men engaged in the same business seems to help us keep on the straight and narrow path of progress. As each county is entitled to a qualified lecturer at least once each year, every beekeeper has the opportunity to personally bring in his problem and have it discussed. At this time the beekeepers of the county can decide where the summer demonstrations are most needed and make application for the number desired.

Some County Associations are taking up the question of co-operative purchasing and selling. Whether or not this is a wise thing to do, is a question. It has been stated that co-operation among agriculturists is being carried to extremes. Let us be careful. I believe that by making intelligent use of the prices recommended by our Crop Report Committee we will be able to sell our honey to the best advantage through the regular trade channels. With regard to co-operative purchasing of supplies I would simply say that beekeepers being generally pretty well scattered I have my doubts if it pays in the long run.

In any case I believe that co-operative buying and selling should be confined to companies formed for that particular purpose. I doubt if the Ontario Beekeepers Association grant was ever intended to be distributed among trading companies chartered under the Ontario Companies Act.

There has been in the past a certain amount of duplication in the work done by the Provincial and County Associations. For instance, I have seen cases where advertising was done direct from the offices of the Ontario Secretary, the County Secretary and the District Representative. In each case advertising matter would arrive at the beekeeper's post-office. In my opinion all such work could well be done through one County office.

In organizing a County Association, stick to simplicity. The fewer officers you have the better you will get along. With an enthusiastic beekeeper as President and a willing worker for Secretary-Treasurer, and one live Director for each township who will assist in making crop reports and keep in touch with the doings of each beekeeper in his vicinity, your organization is complete. Membership fees should be sufficient to include fees for Ontario Association, and likewise the fees of Ontario Association should be uniform with county fee. No member should be accepted in one organization unless he belongs to the other. Each county should be represented on the Board of Directors of the Ontario Beekeepers' Association. In any case every director elected to the Board of the Ontario Beekeepers' Association should *be the choice of the beekeepers of the district which he is supposed to represent and not only the choice of this Convention.*

There was a point touched on by our President which I would like to see this association take some definite action regarding the problem of the returned soldier. Besides assisting in every way possible to give them suitable employment could we not send a resolution to our Government advocating more liberal pensions for disabled and partially disabled returned men.

And now, Mr. President, I am through. The old proverb says "He who little knows soon tells it." Well, you have it. I thank you.

MR. WHITESIDES: There would be a good many directors if every county association was represented.

MR. WEIR: There are twenty-six county associations.

MR. EVANS: The directors do not meet except at the meeting of the Association. The affairs of the Association are in the hands of the executive.

MR. NEWTON: I think the District Director should be called on once a year. I think he would go out of his way to meet the different Associations once a year, but I do not think he should be called on to attend every county meeting. I think it is a waste of postage stamps to send him notice of every meeting.

MR. WEIR: Last year we notified the County Secretaries to take part in demonstration work. There were only thirty-four held last year throughout the Province.

QUEENS.

S. B. BISBEE, CANFIELD.

I thought at first of speaking of queens from a commercial standpoint, but I feel that it will be better to discuss the subject in a general way rather than confine my remarks to queen rearing from a commercial standpoint, as it is not likely that many here will become commercial queen breeders.

You may have the best system of management possible, the most up-to-date hives and all the very best equipment, but unless your queens are as good as they should be, your enterprise as a honey producer will not be a success.

The value of each colony at the commencement of the honey-flow will depend on several things of which the three most important are: A good queen, plenty of stores, and sufficient protection from wind and cold during the early spring. I am uncertain as to just the order in which I should place them. All seem of about equal importance and seem to be so closely interwoven that it seems impossible to separate them, but the queen must be provided first.

Every honey producer should know how to rear his own queens. There may be times when it is better to buy them, and also times when it is certainly better to raise them. Other things being equal the queen that has not been bumped around in the mails for a week or ten days will give better satisfaction and live longer, as I have frequently noticed that queens from the south have been very soon superseded by the bees. There are various ways by which a beekeeper may re-queen his apiaries. One very simple method that will give splendid results with the least amount of labor, is simply to go over the yard selecting about one-half of the best colonies. We will assume that the bees are good Italians. Then mark the ones you wish to dispose of, and after destroying the queens, introduce the good queens to the colonies where the queens have been destroyed. You will find the smoke method work exceptionally well where queens have just been taken from the hive and have really not stopped laying. Now ten days later I would slip a queen excluder underneath the hives where the queens have been introduced in order to confine undesirable drones, as by this time young queens will be about to hatch in the colonies that have been made queenless. If this method is followed just at the close of the honey flow, colonies may be re-queened at very small cost, and the quality of the bees very much improved.

Another method is to remove the queens from a few of the best colonies in the apiary, using the queens elsewhere, and allowing the colonies to rear cells which when ripe may be distributed to the colonies to be requeened. This method has the disadvantage of being unable to confine undesirable drones and also the uncertainty as to the exact time the queens will hatch.

Should you wish to go into rearing queens on a more extensive scale it will be necessary to give it much more time and attention. First the breeding queen must be selected. This is no small matter, and requires a great deal of attention as when breeding all from one queen the quality of the apiary may be greatly impaired if a poor selection has been made.

SELECTING THE QUEEN. Select half-a-dozen of the best colonies in the yard. The bees should not be too bright, but must show the yellow bands very distinctly. The colonies must have wintered well, and shown a marked ability to build up quickly in the spring, they must also have a good record as honey producers for the previous season, and the bees should be gentle. Now examine the queens. they should be of good size with long nicely tapering bodies, the abdomen should be quite golden in color, without any indication of a band, but with the golden color gradually shading a little darker as it nears the small end. She must also be able to keep the brood combs well filled with brood.

Reject as breeders all queens not coming up to those requirements.

TESTING OUT THE QUEEN MOTHERS. Set up one batch of cells from each queen selected, being careful to mark them so you will know which queen they are from. Note carefully when the young queens hatch, those that in size, form and color are uniform. You will sometimes find that the young queens bear very little resemblance to the mother, while others will be very uniform. You will now be able to form some idea as the best ones to breed from, but not until the young queens have been at the head of colonies for a year will the work of selecting the breeding queen be complete. They must be able to produce as good a record as the mother colony.

Having now secured the breeding queen, the next operation is the selection of the colony to start the cells.

COLONY TO START CELLS. A new swarm made queenless will start cells very

well, but any colony, unless honey is coming in freely must be fed in order to start queen cells or to finish them. My preference is a new swarm made queenless and without any eggs or larvæ, give them all the sealed brood you can, then give them a batch of cells and if honey is coming in they will draw them out very quickly. In twenty-four hours the cells should be removed to the top stories of strong colonies and another lot given. This may be repeated again and again, only be sure to keep them well supplied with hatching brood, and do not leave the cells on long enough to be sealed over.

Almost any strong colony will finish them if placed in the upper story, but they must be removed before they are ready to hatch and placed in nuclei or wherever needed. I have not found it necessary to protect the cells if they are just ready to hatch, but prefer to have them hatch in nursery cages.

The young queen or virgin as she is now called should not be disturbed, as annoying the bees at this time is likely to cause the bees to destroy her. In ten days if the honey is coming in you will usually find the young queen has been mated and has started laying. She is now ready to send away, if desired.

REV. MR. MOORE: Is it your experience that you should have thirty cells?

A.—I have had as many as sixty-five or seventy with a strong colony.

Q.—It would need to be a pretty strong colony?

A.—Once the cells are started you will find lots of colonies that will finish them up.

MR. CHRYSLER: After you get them started twelve hours where do you put them?

A.—On some strong colonies to finish up.

Q.—Would it not be better to allow them to get these cells just before they are sealed over?

A.—You might just as well have them in that time draw out two or three more batches.

Q.—The colony you put them in above the excluder; do you suppose they will put in enough royal jelly to make good queens?

A.—It would depend on the honey flow at that time. I would prefer some hatching brood up in the top story. You will find that the bees will take hold of them quickly.

MR. HABERER: Don't you think that if the second colony below is working on extra comb, you will get better results?

A.—There is no doubt you do. There is just one point there. I am a Heddon hive man. Most of you use the Langstroth hive. We usually have a surplus of brood to dispose of at that time. We very often have an excess of hatching brood on top of the hive.

Q.—When is the best time to raise queens?

A.—During the honey flow, the latter part of June or the first of July.

Q.—Would it not cause a strong colony to swarm if you put them there to finish?

A.—Not if you have young queens in that colony. In fact I do not think it would make any difference. I have heard a good deal of discussion about mating queens in the top of the hive, but I have never had success in doing that.

Q.—What do you do with your sixty-five queens?

A.—I use them in nuclei.

Q.—Don't you find that some colonies are better queen cell developers than others?

A.—There is no doubt they are. You will usually find if you have a dark colony that they will finish up queen cells better than a light one. They draw them out better than brighter colored bees.

Q.—Do you ever find that they do not draw out the cells?

A.—Very rarely. You must not give it to a weak colony. They should be fed if there is not a honey flow. Last year it was very hot and some of them got overheated, I left them in the sun for a few minutes, and I do not think one of them hatched.

Q.—Will not a chill sometimes prevent them from hatching?

A.—Yes, if the queen cell is allowed to remain where it is until a few hours before the queen is ready to gnaw itself out you would have no difficulty in removing the cells and I do not think you would find one out of one hundred that would not hatch.

REV. MR. MOORE: It has been said that if you take the queens from a swarming colony it is apt to perpetuate the swarming instinct?

A.—That is a pretty big question to answer. That was discussed last month in *Bee Gleanings*.

MR. DUNN: I think there is a whole lot in these little things. They do not always work out in practical work.

MR. BISBEE: Some exceptionally good queens swarm. It is not always the fault of the queen. Sometimes it is caused by the fact that they have not been given sufficient room. If you give the queen plenty of room in which to work it will largely eliminate swarming.

THE BEEKEEPERS' OUTLOOK FOR 1919.

R. E. L. HARKNESS, IROQUOIS.

We know that the year 1918 was a very prosperous one for the beekeepers. During the winter it did not look as if we were going to have a very large yield. It was very cold, and in some instances there was injury to the bees where they were wintered outdoors. Those who wintered indoors were a little more fortunate. The time came when we wished to see our bees removed from the cellar. The weather was very bad and windy, with the result that day after day passed and my bees were not removed from the cellar until the 5th day of May. That may seem very late. I believe many of our bees are removed from the cellar too early in the spring. I never think of moving my bees until the 25th April, and I like to have them moved by the 5th of May. Last year the morning of the 5th of May was very pleasant weather, and I went to work and moved the bees. Along about ten o'clock it clouded up, quite a wind came up, and it was cold. Part of my bees were in the cellar and part of them were out trying to fly, and I saw a good many of them perishing. I stopped the work, and then said "I will continue putting them out" and I did so. The conditions were very much against me and I was quite down in the mouth about it. I am a very strong advocate of stimulating my bees in the spring by feeding them. I find that the colonies that I feed prove out best in the season's work. I do not care how strong a colony may be or how much stores they may have, I give them some feed in some form or another. If my colonies are strong I simply uncap some of the stores they have. If not I feed sugar syrup. The idea is to keep the queen active. The very fact

that she is moving honey from one part of the hive to another is going to stimulate her. I have abandoned the overhead feeding because of the fact that the queen has to move the stores which stimulates her.

This winter is the reverse of last winter, we have mild weather and very little snow. It is hard to say what effect that will have on the clover. Poor conditions in the spring will injure the clover more than the bad conditions in the winter. Late frosts in the spring will affect the clover crop. I do not believe it will have such a marked effect on heavy soil, but on light sandy soil it will have a serious effect.

It is my opinion that prices will remain fairly high. There is a shortage of sugar, although we are getting sufficient for our present needs. Sugar prices will remain high, and we know that sugar prices largely control other sweets. Honey is one of our most favored sweets apart from sugar. We cannot expect to get the prices we did in 1918, but I am looking for a price in the neighborhood of 15c. or 18c. I am not looking for a 25c. market for honey this year. I feel that we would be extremely selfish if we did expect that price. I believe it will be a long time before honey prices are back to the old level of 10c.

Q.—When do you uncap to feed the bees?

A.—I uncap the outside combs and get them carrying. The object is to get them to move the honey from one part of the hive to another.

Q.—Leave it next to the brood or just where it is?

A.—Leave it just where it is, simply go out with the capping knife and shave off the capping, pick the capping up carefully.

MR. WEBSTER: You seem to want to move them from the cellar on the 25th April or the 5th May, might there not be a day in between that would do just as well?

A.—That is the period, I never think of moving them before the 25th April, and do not like to leave it later than the 5th May. Any time in between will do. I live in Dundas County, in the eastern part of the Province.

Q.—When do you put them in the cellar?

A.—Last year I put them in the cellar on the 20th November. I let them stay out as long as I think they are going to get a nice flight, and as soon as I think the last flight is over I put them in the cellar. In many instances they will be out in November for two or three weeks without a flight, I do not like that because I find that the consumption of stores during a period like that is serious.

Q.—What have you against overhead feeding?

A.—I cannot say that I have anything against it, but I find that feeding from under is easier for me with the feeder I have. If you feed from below you do not let the heat escape. You can put your syrup in from the back with a long spouted can. All I use in the feeder is a half-inch auger hole, and if I want to close the entrance I use a cork. You are not bothered by robbers, because a half-inch hole is easily guarded by the bees. You can have a number of these feeders on hand and feed fifty to one hundred hives easily.

MR. HODGETTS: The Directors at their meeting recommended to the Association that they forward to Ottawa a resolution urging them to protect the interest of the beekeepers by amending the pure food regulations so that the manufacture of other substances in imitation of honey should be prohibited.

MR. SIBBALD: It will not be necessary to discuss that very much, because everybody will be in favor of it. I move the adoption of such a resolution. Seconded by MR. WEBSTER and carried.

THE CHAIRMAN: The Directors appointed a Press Committee last night, composed of Messrs. Dr. Gates, Byer and Sibbald.

MR. SIBBALD: I hope you will all be willing to contribute an article to the *Bee Journal*, we intend asking you to do so. We will soon have a meeting, and we will try and outline a programme and will ask beekeepers to contribute to each number.

MR. DUNN: I am glad that we have a press committee, and have no doubt that they will do their duty. I do not like to see big head lines across a paper "Honey Must Come Down." Honey should not come down until sugar comes down. A chemist told the Italian Government something about honey that caused them to send one ship load of three thousand tons to Italy for their soldiers. Every Italian soldier carried a little tin of honey for his daily ration. If it has three times the food value of any other sweet, why should it not be worth three times the price of any other sweet? Every bit of honey that goes into our system goes to nourish the body, and is made into blood, and there is not one bit of it wasted. I do not know that I would take 20c. a pound for my next year's crop right now. I know that I would not, because I am too good a sport for one thing.

MR. HODGETTS: We are practically all agreed that the price will be lower than last year, even if it is one cent a pound lower it will appeal to the city women, and they are going to be looking out for honey next year, and if it is cheaper they will buy more of it. If it is only down one cent they will buy more than they did last year.

MR. EVANS: I want to make a suggestion in connection with the resolution as to the legislation against imitation honey. It is practically useless to send a resolution unless you have somebody there to back it up. I would suggest that we send the President down to look after our interest.

MR. HOLMES: I think that is an excellent suggestion.

MR. MYERS: That is a matter of finance. If we have the money it is a good suggestion.

MR. DUNN: What we want is legislation to prevent anyone from mixing honey with anything else, and calling it honey.

MR. GALBRAITH: Would it not be well to insist that the percentage of food value should be stated on the package. It is my experience that the people of Toronto are willing to pay if they get the value. I was never asked why I was asking 30c. per pound, but I have heard them say "We do not want to pay out money for sugar syrup."

MR. COUSE: I don't know anybody who could look after this matter better than Mr. Hodgetts. He has had experience in this kind of work, and I know he would know who to get in touch with. I move that Mr. Hodgetts be on that committee.

MR. HODGETTS: I think the matter might well be left in the hands of the Executive Committee.

MR. WEBSTER: You have heard the motion that Mr. Hodgetts and Mr. Armstrong attend to this matter, all in favor signify. Carried.

THE SUGAR SITUATION.

WM. A. WEIR, TORONTO.

The matter of sugar was kept in view right from last spring. When we saw that there would be a great difficulty in convincing the authorities that granulated sugar was the only thing that would do for beekeepers, we set to work vigorously to see what could be done. We secured what they call sugar crystals. A number of visits were made to Ottawa, and we found that they were very much opposed to any granulated sugar being allowed to the beekeepers, and they substituted raw sugar crystals for it, and we pointed out that would not do. They pointed out to us that the stocks of granulated sugar were very low in the warehouses and refineries, and they could not promise any definite quantity, but they promised to do what they could.

As a result of the conference of the beekeepers on July 5th we advised to hold sufficient stores against a possible shortage of sugar. I am very glad to say that at the last moment, about the third week in August, we were allowed to issue permits, and 2,232 permits were issued. After the permits were issued we found that at least 50 per cent. to 75 per cent. of the beekeepers secured their required allotment. Every beekeeper was treated on the same basis. There was no deviation from the general plan. We have every reason to be thankful to the Canada Food Board for the way they handled our interest. We are assured that unless something very unusual happens during the coming season there will be no difficulty in securing what we require.

QUESTION DRAWER.

(Answered by H. G. SIBBALD, CLAUDE.)

Q.—I have two pure-bred Italians, and five hybrids. When is the best time to Italianize, and what is the best and cheapest way? Blacks all around me.

A.—In the beginning of the clover season.

Q.—Has this Association any way of purchasing supplies, other than bees and queens at a discount for its members?

A.—The Ontario Beekeepers Association have not gone into that at all, it has always been left to the local societies, except that we did something in the sugar question.

Q.—Has there been any noticeable bad effect to close breeding without introducing new stock?

A.—The tendency would be for the bees to go black year by year. It pays to introduce new queens.

Q.—Is it advisable to mill up extracting combs that have been on hives that had American Foul Brood?

A.—I do not think it is wise to melt them up unless they had much pollen in them. I would not melt them up if they were perfectly white.

Q.—Will not the raising of the annual dues to \$1.50 per year be the cause of a good many dropping their membership from the association?

A.—I do not think so, as 25c. or 50c. is very little, and if the members do not value the Association more than that they might as well drop out as stay in. The premium they get is worth more than the \$1.50.

Q.—Can you suggest any way to stop bees from robbing when using Boardman entrance feeders?

A.—If you feed only in the evening you will overcome the robbing.

Q.—Can you give any good reason for using stands, sufficient to warrant the purchase of them?

A.—Hive stands are necessary, they save the hive bottoms and they are convenient. I don't think any up-to-date beekeeper would do without hive stands.

Q.—Is it necessary to have top ventilation during the honey season?

A.—I do not think it is necessary to have top ventilation during the honey flow. I would use bottom ventilation in preference.

Q.—Give a few hints on spring management, and the building up of colonies in the spring?

A.—That would require quite a long answer: First examine the colonies for stores and queens; contract the combs, close them up as tight as possible and close the entrance so as to prevent robbing. Keep them warm, and then leave them alone until about May, when you should clean up the hives and clip the queen. If you have a weak colony put in a division board and pack them up nice and tight.

Q.—How can candied honey be removed from the combs?

A.—I do not know any better way than to melt the combs; another way would be to feed it to the bees in the spring.

MR. HARKNESS: Keep candied honey like that for feeding in the spring. This spring I had honey that was absolutely hard, you could not cut it with a knife. The bees carried in water and worked it up perfectly.

Q.—Can bees be moved or shipped a distance of say twenty miles early in the spring before they are flying regularly?

A.—I would say they could.

Q.—What is against moving bees in cold, or cool weather?

A.—The only thing I know of is that the combs are brittle and apt to break.

Q.—I would like to know the cause of spring dwindling, after the bees have had their first fly?

A.—The cause is poor wintering, old bees in the fall before. If bees are wintered under favorable conditions they will be nearly as young in the spring as when put away in the fall. If the hives are old and damp, the bees age in the winter, and soon die off when they come out in the spring.

Q.—How best can I increase the number of colonies and still get a crop of white honey?

A.—You can put up so many brood combs in the supers and then divide them into nuclei; that leaves your colony almost intact, then give them a queen. If you do that early in the season you will have good colonies in the fall.

Q.—If you were stocked with eight frame Hoffman hives would you continue using them or commit suicide?

A.—I have always considered the Hoffman frames a considerable nuisance. I would advise you to spend your idle time whittling off the spacing device, you will soon get them allright.

Q.—If you were making double walled hives would you consider two inches of packing (planer shavings) between half inch walls lined with building paper sufficient for the Niagara District?

A.—I would think it would be all right. It might be better to have three inches.

Q.—Can anybody in the gathering put forward any arguments for or against the large hive, twelve or thirteen frame?

A.—That is a matter that every beekeeper will have to figure out for himself. I would think a lady could handle an eight frame hive easier than a larger one. For comb honey, small hives are the best. A larger beekeeper can do with a large hive, he does not have to examine them so often.

Q.—For a good quality of honey should it be pailed up as soon as the scum forms on top of the honey, or left in the honey can to ripen still more?

A.—In our district we never see any scum on the honey. I have bought honey that had quite a lot of scum on it. I would tin the honey up immediately and save all the flavor, and keep it away from dampness.

Q.—Do the majority of beekeepers sell their honey to retail men at the same price as they sell it to the wholesalers?

A.—I do not think they do. The majority are making a difference between the retail and wholesale price.

Q.—Does the consumer get his honey at the same price as the wholesaler?

A.—He should not.

Q.—If one had a colony in the cellar weak and short of stores, yet not too weak to build up, would it be advisable to set it out on a warm day such as we have had recently and feed sugar syrup the same as you would in the fall and put it back in the cellar in the evening?

A.—I would say you could set it out and shake the bees, and take a comb or two into the house and fill them with sugar syrup by pouring it in, and then take it back and set it in the hive right beside the cluster and then put the hive back in the cellar.

Q.—Why take the hive out of the cellar?

A.—If it was a fine day you could handle them better, it would not do them any harm to have a little fly. If the weather was cold you could do it in the cellar.

Q.—What size container is best in which to sell honey to the wholesale trade?

A.—That is a hard question to answer because there is a demand for 60 lb. cans and 10 lb. cans and 5 lb. cans. If you have no special demand it would be well to put up some in each size. The retail trade calls for the 5lb. tin.

Q.—What is the present price of honey?

A.—I think about 20c. to 25c. The people who bought at 27c. are trying to get out of it without losing, and they are holding up the price to 28c. and 30c.

Q.—Will honey go down in price from now till the new stock comes in?

A.—I do not think it is likely to go down any further.

Q.—Is it advisable to re-queen as soon as you notice paralysis?

A.—I think so.

Q.—What is the best top packing for hives, and what should be the thickness of it?

A.—There are a number of packings used, and I think they are all good. Of course if you use shavings, or leaves or chaff, you would require more than if you used cork dust. You require about a foot for leaves or chaff, and about seven or eight inches for shavings, and I suppose you could do with a little less cork.

Q.—Would it be advisable to keep bees on the roof of a house in the city, or would the wind seriously affect them?

A.—People do keep bees in that way where they cannot get any other place, I would prefer to have them on the ground.

A MEMBER: I put eight hives of bees up in a bedroom one fall and they were all right until it got cold.

Q.—Is there any law to compel careless beekeepers to get rid of European Foul Brood? If not, how can a beekeeper who cleans his yard of this disease keep his apiary clean?

A.—You could send for an inspector to clean up the neighborhood.

Q.—Does the Isle of Wight disease infect the soil or yard with the result that a new stock of bees located on the same site will be attacked by the same disease? If so how long is the infection virile?

A.—I do not know about that.

Q.—Does the disappearing disease and bee paralysis infect the yard similarly?

A.—Not in paralysis. I am not sure about the other.

Q.—How is syrup for fall feeding usually made? Is the syrup boiled? What proportion of sugar is used?

A.—I bring the water to a boil and then put it in a can. We weigh the water so as to have about sixty pounds. We then put into that water about one hundred pounds of sugar, and stir it until it makes a clear syrup. That saves the trouble of putting the sugar on and off of the stove. The sugar going into the water in that way cools it rapidly, so that you can feed it almost right away.

Q.—When the weather is cold as it was last September, what is the best way to take honey from the bees? Will the bee escape do the trick?

A.—I do not use a bee escape, I suppose I am out of fashion in that regard. It is very easy to get the bees off by the escape method in September. They are usually well down in the brood. There is only a small cluster up in the combs. It is only a matter of shaking them and brushing them when you can get them off. The bee escape is a slower method in the cold weather.

Moved by Mr. Couse and seconded by Mr. Bisbee, that the thanks of the Association be extended to the Government for the use of the room in which to hold the Convention. Carried.

Ontario Department of Agriculture

ANNUAL REPORTS

OF THE

DAIRYMEN'S ASSOCIATIONS

OF THE

PROVINCE OF ONTARIO

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

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1919

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THE RYERSON PRESS

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present for the consideration of Your Honour the Report of the Dairymen's Association of Eastern Ontario for 1918, and the Report of the Dairymen's Association of Western Ontario for 1918.

Respectfully submitted,

GEO. S. HENRY,

. Minister of Agriculture.

Toronto, 1919.

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DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO

OFFICERS FOR 1919.

Honorary President—JOHN R. DARGAVEL, M.L.A., Elgin.
President—R. G. LEGGETT, Newboro, Ont.
First Vice-President—T. H. THOMPSON, Madoc, Ont.
Second Vice-President—N. FRASER, Vankleek Hill, Ont.
Secretary—T. A. THOMPSON, Almonte, Ont.
Treasurer—JAS. R. ANDERSON, Mountain View, Ont.

Directors.

- 1. Ontario, Victoria, and Haliburton* HY. GLENDENNING, Manilla.
- 2. Peterboro* G. A. GILLESPIE, M.L.A., Peterboro.
- 3. Lanark JOHN STEEL, Almonte.
- 4. Renfrew D. MUIRHEAD, Renfrew.
- 5. Carleton THOMAS HICKS, North Gower.
- 6. Russell W. H. OLMSTEAD, Bearbrook.
- 7. Prescott* N. FRASER, Vankleek Hill.
- 8. Glengarry A. J. ROBERTSON, Martintown.
- 9. Stormont* WM. BROWN, Dickinson's Landing.
- 10. Dundas GEORGE SMITH, Iroquois.
- 11. Grenville* JAMES A. SANDERSON, Oxford Station.
- 12. Leeds R. G. LEGGETT, Newboro.
- 13. Frontenac CAMPEL, Hartington.
- 14. Lennox and Addington M. N. EMPEY, Napanee.
- 15. Prince Edward W. A. BENSON, Picton.
- 16. South Hastings* JOHN A. KERR, Belleville.
- 17. North Hastings T. H. THOMPSON, M.P., Madoc.
- 18. Northumberland* ALEX. HUME, R.R. 3, Campbellford.

G. G. PUBLOW, Chief Dairy Instructor, Kingston.
L. A. ZUFELT, Superintendent, Eastern Dairy School, Kingston.
Auditors—J. J. PAYNE, Brinston, Ont., and MORDEN BIRD, Stirling.
Representative to the Canadian National Exhibition—HENRY GLENDENNING, Manilla.
Representatives to Central Canada Exhibition, Ottawa—R. G. LEGGETT, and T. A. THOMPSON.

FINANCIAL STATEMENT FOR 1918.

RECEIPTS.		EXPENDITURE.	
Cash on hand from previous year	\$1,435 39	Perth pay sheet for directors	\$379 85
By cash, members' fees	241 60	Pay sheet, No. 2, executive to Toronto	161 60
Government grant	2,500 00	Prosecutor's salary and expenses	552 27
Receipts from programme ads.	135 00	Lecturers' expenses	340 15
Cash received from prosecutions	377 50	Advertising and printing	522 84
Receipts from dairy exhibit	3,085 34	Rural Pub. Co., subscriptions to <i>Farm and Dairy</i>	161 70
Donation for special prizes	25 00	District meeting expenses	153 49
J. R. Anderson, error in auditing	6 00	Stationery, postage, telephone and express	108 72
Molsons' Bank, interest	37 89	Officers' salaries	600 00
Total receipts	\$7,843 72	Official stenographer	90 00
		Expenses for dairy exhibit	4,225 19
		Total expenditures	\$7,295 81
		Cash on hand, Jan. 9th, 1919	547 91
			\$7,843 72

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO

OFFICERS FOR 1919.

President—FRANK BOYES, Dorchester.
First Vice-President—W. G. MEDD, Woodham.
Second Vice-President—J. SCOTT, Woodstock.
Third Vice-President—GEORGE TAYLOR, Guelph.
Secretary-Treasurer—FRANK HERNS, London.

Directors.

T. BALLANTYNE, Stratford. NOBLE ALLEN, Canboro.
JAS. DONALDSON, Atwood. ROLAND JOHNSTON, Bright.
ROBERT MYRICK, Springford. GEORGE E. BOOTH, Ingersoll.

Representatives.

Canadian National Exhibition, Toronto—FRANK HERNS, London; ROBERT JOHNSTON, Woodstock.
Western Fair, London—FRANK HERNS, London; J. BRODIE, Mapleton.

Auditors.

J. A. NELLES, London; J. C. HEGLER, Ingersoll.

FINANCIAL STATEMENT

Of the Dairymen's Association of Western Ontario, made to the Department of Agriculture, for the Province of Ontario, for the year ending December 31st, 1918.

RECEIPTS.

Cash on hand from previous year	332 15
Members' fees	266 00
Legislative grant	2,000 00
Money received from prosecutions	647 00
Sale of dairy exhibits	2,463 39
Advertising in convention programme	205 00
Miscellaneous	3 45
Total	\$5,916 99

EXPENDITURE.

Cash paid for prizes, cheese and butter, \$501.00; Dairy Herd Competition, \$30.00 ..	\$531 00
Expenses for Convention	132 02
Stenographer's salary, \$502.50; directors' expenses, \$186.35.	688 85
Postage and stationery, \$171.87; printing, \$230.50; advertising, \$121.10	523 47
Judges' fees and expenses, \$43.90; lecturer's expenses, \$6.00	49 90
Prosecutor's salary, \$224.80; expenses, \$98.70	323 50
Periodicals for members	193 20
Cost of reporting	60 00
Purchase of dairy exhibits .	2,455 31
Office expenses, light, cleaning and sundries	153 53
Telegrams and telephone, \$73.50; express and cold storage charges, \$12.01	85 51
Office rent, \$124.00; office furniture, \$44.70	168 70
Half fines paid to factories...	323 50
Auditors' fees	15 00
Interest on overdraft	50
Butter boxes	7 20
First instalment National Dairy Council	20 00
Total	\$5,731 19
Balance	185 80
	\$5,916 99

Dairymen's Association of Eastern Ontario

The Forty-second Annual Convention of the Dairymen's Association of Eastern Ontario was held in Belleville on Thursday and Friday, January 9th and 10th, 1919. The attendance was well above the average, and the programme very attractive and helpful. The exhibit of cheese was large, and of excellent quality, and added much to the interest and value of the Convention. The President, R. G. Leggett, Newboro, presided at nearly all sessions.

PRESIDENT'S ADDRESS.

R. G. LEGGETT, NEWBORO.

"It is with pleasure that I welcome you to the Forty-second Annual Convention of the Eastern Dairymen's Association, at Belleville. While it is a pleasure to welcome you I cannot do so without paying a tribute to our gallant men and women to whom we owe so much in this world-wide war. The last time we met in convention we felt the shadow and burden of the war; at the present time the clouds are lifting, the burden is being removed, and we are looking forward to a year of peace and prosperity throughout the world.

You will no doubt remember that the city of Belleville enjoys the unique distinction of being the birth-place of "Organized Dairy Instruction." This system was first proposed by Mr. J. R. Dargavel, Honorary President; Mr. G. G. Publow, Chief Dairy Instructor; and the late Senator Derbyshire. Looking back over the past sixteen years, a marked improvement is easily noticed. At the beginning, prosecutions for adulterated milk were numerous, but recent reports from our Instructors show that at the present time such prosecutions are rare.

Since our last meeting many changes have taken place, changes which have affected all kinds of industries and occupations. Some have prospered, and some have not; but the dairy business has held its own. Personally, I would advise dairymen to stand by the dairy products of Canada—especially cheese. I have more faith in the dairy business to-day than ever before: "It has stood the test in war time, and we know it will stand the test in peace time."

The speaker then referred to the cold spring, the hot dry spell in July and August, and the cold and rainy September and October, as causes for a reduction of nearly 6,000,000 pounds in the output of cheese for 1918.

Favorable mention was then made of the National Dairy Council. The speaker then said: "In closing, I take much pleasure on behalf of the Association in tendering the thanks of the Dairymen to the Departments of Agriculture both Provincial and Federal, for the splendid assistance rendered."

NOMINATING COMMITTEE.

The following were appointed as a Nominating Committee: J. A. Sanderson, T. A. Thompson, J. A. Kerr, A. J. Robertson, W. H. Olmstead, John Steel.

RESOLUTIONS COMMITTEE.

The following were appointed a Committee on Resolutions: Henry Glendinning, Neil Fraser, Wm. Brown, G. A. Gillespie, D. Muirhead, Geo. Smith.

A SURVEY OF DAIRY FARMS IN OXFORD COUNTY.

MR. A. LEITCH, B.S.A., O.A.C., Guelph, gave an address on the results of a survey of dairy farms in Oxford County. See report of a similar address delivered at the Western Convention.

ADDRESS.

DR. J. H. GRISDALE, DEPUTY MINISTER OF AGRICULTURE, OTTAWA.

I am very glad indeed to find myself once more in a position to address the members of the Eastern Ontario Dairymen's Association in Council gathered for the forty-second time.

The volume of business done by dairymen is simply enormous. It is incomprehensible to one who sees only a bit of the dairying in one part of the country, and yet it seems to me we have only touched the fringe of the possible. In this immediate neighborhood, the development has been very great, and it might be considered to have reached the apex of possibility, but in many other parts of Ontario, for instance to the far north of us where there is a stretch of land some 250 miles long and 50 to 100 miles wide of quite as fertile land as can be found in any other part of this Dominion, and which is completely untouched, it is possible to carry on dairying profitably. We have demonstrated at two or three points, and we know that when that country is opened up, the great dairy industry may be developed. I am of the opinion from what I know of that country that that is the industry which will permit of its being opened up, and together with beef cattle it will be the principal thing to develop that country.

The same thing is observable in the West. Every Province has shown tremendous development along these lines, and much greater development is possible and advisable. We have in this industry an outlet for our surplus feed and for our manufacturing inclinations that no other country opens up. The opportunities in Canada and in the United States and in Argentina and Australasia for immediate expansion of the live stock industry and of dairying are enormous, Europe finds herself at the present time something over 150,000,000 head of live stock short of what she had before the war. Canada is in considerably better shape, in that respect, than she was at the beginning of the war.

I am safe in saying that the quality of our dairy cattle is even better than it was four or five years ago. We may congratulate ourselves on having made this progress at a time when everything was so exceedingly dear, but possibly the fact that things were dear, is responsible for the progress that we have made. When a man is feeding three or four cent meal and a cent to a cent and a half a pound hay to dairy cows, he begins to look more carefully at the kind of cow he is giving it

to, and that is responsible, in a measure, for the marked improvement that is observable in this Province as well as in Quebec and in some of the other Provinces.

The United States has increased the number of her cattle; Australasia and Argentina have increased. I mention these so as to enable you to realize what lies ahead of you in this country and what chances we have of competing with these other countries which have the advantage over us in some respects. The climatic conditions in New Zealand, Australia and Argentina are considerably better than they are here for dairying and for sheep and beef. They also have the advantage in the United States in some respects. But we have the advantage of being more close to the market than the United States; we are just about half as far from the market as Argentina, and we are only about a quarter of the distance of Australia and New Zealand; hence our chance of getting our produce on that market in good shape and at a low cost. The United States is practically the same distance from the European market as we are, and at the present, is shipping enormous quantities of meat and dairy products, but there is no doubt that in a few years, instead of exporting dairy products, the United States will find herself importing. In fact the United States is importing to-day, and there is no doubt she will be importing beef as she was four or five years ago. Her population is likely to grow in the near future, and the population that is sure to come to her shores is not of that class that is likely to settle on the land and increase the output of her farms; on the contrary it is such that will settle in the towns and villages and increase the consumption of farm products.

Hence we may say that the United States as a meat producing nation, barring possibly bacon, will be eliminated from the competition.

The market of Europe is likely to be somewhat limited and restricted by the purchasing ability of the European nations, and it is up to us to bend every effort to try to establish ourselves as producers of the best quality of goods of a uniform grade, and to be able to produce a uniform supply in order that European countries may look to Canada as the source of their supplies for the future. For the next two or three years our efforts should be to establish ourselves permanently on this market. In order to do this, there are two things that we must keep in mind. In the first place we must have a better quality of goods. I was very pleased indeed to learn from the Cheese Commission that Canadian cheese, particularly from this district, have been remarkably good. Therefore, I do not suppose it is to be hoped that you will make much progress along that line, but in other parts of Canada, there is room for improvement, and there is certainly room for expansion.

In butter there is a great deal of room for improvement. There is one other product that we export—condensed milk—on which we have built up a very considerable industry. We are shipping to-day, and have been for some years, large quantities of this product, and in the Department of Agriculture we have been making a special effort to control the quality of this product as it left this country, so that it will have a good reputation in the markets of the world. We have managed to hold the market, and I see no reason why we should not continue to hold it. We will then have another string to our bow. The market for condensed milk is not confined to England, but it is shipped to almost every part of the world, and the dairymen of this country will find themselves in a position to command a higher price for their product than they have been able to command in the past. I know that to a certain class in this room, the condensery is rather objectionable. I see no reason for any opposition to it, and it is a great advantage to the

farmer, because he can demand a higher price for his milk, and the farmers are exceedingly anxious to get the highest price.

What can we do as farmers to establish ourselves more firmly than ever in this dairy industry? In the first place, we must increase the product of our herds. You have listened hour after hour to discussions on this point of bringing up the yield of the average herd. Progress has been made in the last few years, but still further progress is possible. Our cows have increased in product by about 50 per cent. in the last eight or ten years, and there is no reason why the average cow should not increase by 50 per cent. more in the next three or four years. That sounds like a pretty large order, but it is quite possible. It is quite possible to increase the yield of our dairy cows by 50 per cent. in the next four or five years. I say that in spite of the present high prices of feeds of all kinds. This is the time to do it, because we will appreciate all the more the importance of keeping only the best cows and eliminating the poor ones, and we will appreciate all the more the importance of keeping the progeny from the best and using the right kind of a sire. My experience has been that good feeding and good care and good selection and breeding pays in every instance. The middle of the cow is the big feature of that animal, and if you gratify the instincts of the cow by giving her something to satisfy the middle, she is going to give you something to satisfy the cravings of your purse—something that will pay for all the feed you give her. Even at \$60 a ton for oil cake meal, or \$30 or \$40 a ton for bran, and even hay at \$20 a ton, it will pay.

Breeding and selection should be taken up by every man on the farm. Some one has said that the bull is half the herd, but if it happens to be a scrub bull, he is nearly all the herd. The scrub bull has done more to injure the dairy industry than any lack of interest or carelessness on the part of our farmers in this country. The use of a pure-bred female is also necessary. Many farmers think that it is impossible for them to undertake breeding operations with pure-bred animals, the cost being so high, but the cost is not so extravagant if you undertake to start off in a small way. It is a mere bagatelle if we start with one or two, as we should, and build up.

I can remember somewhere about twenty odd years ago being a teacher in a little country school in the Eastern part of Ontario, and a neighbor, four or five miles away, came to me because I had displayed some little artistic ability, to get me to sketch the marking of a couple of Holstein heifers he had bought from someone near Belleville here. I did it with pleasure. These were the first pure-bred Holsteins in that neighborhood, and the man was looked on as a fool to have paid \$75 apiece for these two heifers. That man has sold since that time, many thousand dollars worth of pure-bred bulls, and he has bought very few females. not more than half a dozen altogether since that time. He had a sale the other day where he sold something like fifty odd head and kept a herd for himself, and he sold his farm to his son. The cattle brought just about twice as much as the farm. That is the result of one little investment in a couple of pure-bred heifers and eliminating the scrub cattle. At the time of his dispersal sale, he had nothing but pure-bred cattle on his farm, and had probably three times the value in live stock that he had in land, although he had a good farm.

The man who is interested in live stock cannot have too many outlets. It is imperative that he should not be tied down to any one line. I do not say that a farmer who is running a dairy farm should also attempt to keep sheep and beef cattle, or to branch out into too many lines, but I do say the country as a whole

should have these different lines if we are going to make the progress, and have the prosperity that we should have in this country where the climatic conditions and the soil and the market conditions are so good.

In addition to better breeding, we should have better housing. I want to say that there is much room for progress in the matter of buildings, much room for such modifications as will result to the advantage of the live stock. There are just two points in this connection that I would like to mention to-day; first, better lighting; second, better ventilation.

To light a stable up properly in the day time, is the simplest matter in the world. The putting in of a few good, large windows is an inexpensive operation and one that can be done by the farmer himself on a rainy day or in the fall or at some other time when he cannot work outside. At the Experimental Farm we have been making a study of the lighting of buildings, and we have been examining barns all over Canada. Those of you who have had the opportunity of visiting our barns at Ottawa, in the last few years, know how exceedingly light they are. In fact one barn, that we call the experimental barn, is just one window after another with no more than a foot between them. These windows are about six feet high. You might say that is overdoing it, but I do not think it is. We have been using that barn now for seven years, and we have never seen any ill effects from that super-abundance of glass. We use double windows, which makes it a little more expensive but, on a cold January day when the sun is shining, the benefit is incomprehensible to a man who has a cow barn that is lighted by one or two little windows. The effect upon the cattle is astonishing. We have taken cattle in there, and in a short time they have more than doubled their output. I won't go so far as to say that lighting the barns will do that but, if you give a cow good light, good feed and good ventilation, it will have that effect upon her productive ability. In that barn, which is the best lighted one we have, we have always had the most profitable cows. Not only is that barn well lighted, but every ten feet along the wall, there are inlets for fresh air, and two large outlets in the ceiling to allow for the exit of the foul air. With such splendid ventilation, with such perfect lighting, no cow, if properly attended to, will object to doing her best, and every cow in that barn seems to put forth her very best effort.

There is one error that is made by some farmers, and that is raising the ceiling too high. Don't get them too high. Put your windows as high as you can and as low as you can. You say, "What have all these points to do with the building up of our dairy industry?" The more cheaply we can produce, the more certainly can we command the market of to-day and to-morrow and the future. The more milk our cows produce, the more cheaply can we produce butter and cheese, and every one of these points I have mentioned are points which we have found to be important, and absolutely necessary in producing milk cheaply,—good feed, better feeding, better housing, better ventilation and better lighting.

LABOR SAVING DEVICES.—I could stand right here and name you two or three dozen labor-saving devices, but I would not urge upon you to install every labor-saving plan that you hear of, because you would want to get your pocket book extended and to make your herds more profitable than they are to-day to purchase these inventions, but there are certainly labor-saving devices which may be advantageously introduced on every farm. Among these, are the silo and the litter carriers and feed carriers; and there is one invention that has come on the market recently

—the milking machine—that is such a labor-saving device that it has saved a number of farms during the last couple of years. I could name at least half a dozen farmers in the neighborhood of Ottawa who have introduced the milking machine rather than quit the farm. It was either purchase a milking machine or leave the farm, and they chose the milking machine, and it has given them satisfaction. The milking machine is an implement that has come to stay. We have given it a thorough trial on the Experimental Farm. We have tried ten different machines, and we know what to say about them when a man comes along asking for information.

The milking machine will enable you to keep a few more cows and to handle them a little bit better than you did before. I saw this milking machine some 17 years ago, and I was absolutely opposed to it; but since that time the manufacturers have done a great deal to improve them, and now they are giving satisfaction. We have at the present time several machines manufactured on the Canadian market that are giving good satisfaction, and if you write to our Department we will send you literature with reference to all of these machines. The milking machine is here to stay, and it is a machine that is not expensive for the work that it does. If you are going to operate the machine yourself, you should first take lessons from your wife as to how to keep it clean; otherwise you will get into trouble.

I have heard several complaints as to the scarcity of coarse grains. There is a demand to the south of us and in Europe for these coarse grains, at almost any price, provided facilities can be secured for transporting them over there. We are in receipt quite frequently of requests for coarse grains of one kind and another. Hence we are not expecting the price to go down. The price of these grains is high in comparison to what it was a few years ago, but we must admit that the same condition applies to milk. It is relatively just as high if not higher than the feeds; and cheese and butter are in the same condition. Milk sold in the city is even higher, relatively, than it was, in comparison with the price of feed, four or five years ago. For the sake of saving a few dollars in feed, it does not pay to sacrifice your herd.

There is no question that in a year or two we are going to have feed to export from this country, and there is no doubt that feeds are likely to drop fairly quickly. Europe is quite impressed with the importance of producing all the grain she can, and she is going to do it next year. You know the tremendous change that took place in Great Britain last year. Grain production increased by something over 100 per cent. last year, not entirely on account of the area, but they had a much better crop, and it is undisputed that they will grow a big crop in 1919, and we are growing a big crop. Hence feeds are likely to be much cheaper. With a shortage of 150,000,000 head of cattle and other live stock in Europe, do you think dairy products are likely to fall quickly? I do not see how they could. It seems to me an absolute impossibility for these things to go down. Great Britain will take all the dairy products and poultry and eggs that we can give her—very much more than we are producing at the present time. Denmark and Holland and Belgium are not in a position to furnish Great Britain with the things she needs, and will not be able to do so for some little time. Their live stock population has decreased so enormously, and they cannot hope, for eight or ten years, to become normal. But in the case of swine it will take much less time. Therefore I think a period of good prices is looming before us in dairy products and poultry. I cannot see how it will be otherwise, and I see no reason

why we should not extend our herds and flocks and do everything we can to improve them. In that way we will build up and establish ourselves on these markets, and have such a reputation that it will enable us to continue indefinitely along these lines.

CO-OPERATIVE DAIRY COMPANY FOR ONTARIO.

MR. H. B. COWAN, PETERBORO.

I have been asked to report for the committee that has been investigating the possibilities of establishing a Co-operative Dairy Company in Ontario. Most of you are familiar with what is proposed, and it may not be necessary for me to go into that at length, but I will just outline briefly what has been done so far.

The proposal is to establish a co-operative dairy company in Ontario and it is a sign of the times. It grows out of the great success that has attended the Farmers' Company in Western Canada during the past ten or twelve years. Noticing the success these companies have made in the West, some two years ago, the United Farmers appointed a committee with the object of seeing if a company could be established in Ontario that would take over and operate some of the cheese factories.

That committee at first did not do very much, because of the conditions that prevailed in connection with the cheese trade—the product being bought by the Cheese Commission—but we all know that condition will change before long, and the committee got busy and investigated conditions as thoroughly as they could. We are all pretty familiar with conditions in Ontario, and what we wanted to find out was whether it would be practicable to establish a company of the same kind as has succeeded so well in the West. It was my privilege last year to be in the West, and to have opportunities of discussing the matter fully with the officers of the Saskatchewan Elevator Company, and later, with the officers of the Saskatchewan Co-operative Creameries. I found that most of these men had been brought up in Ontario and were familiar with Ontario conditions. They were unanimously of the opinion that such a company could be established in Ontario.

I have heard the remark made that conditions were different in Ontario than in the West, and they are different in a number of respects, but they are not so different as might be supposed. When the elevator company was established in Saskatchewan, the majority of the elevators were in the hands of the big milling concerns, and in the face of that competition they succeeded, eight years ago, in establishing this Elevator Company. The first year they erected 80 elevators, and they have gone ahead year by year, until now they have control of 314 grain elevators. They have their own big terminal elevators at Port Arthur and Fort William, and they have made a great success of operating their company, and they show a handsome profit every year, one year making as high as \$675,000.

Supposing the farmers of Prince Edward County decided that they wanted to establish a similar company, they would put all their factories into it, and there would be a local organization in connection with each factory, and these local committees would meet and advise in connection with the factory and the engaging of makers, and would meet once a year and appoint delegates who would attend the annual meeting of the central company. These delegates, from among themselves, would appoint their Board of Directors who would control the whole company. It is simply carrying out the principle of co-operation, which we have

already in connection with our dairy industry to a very considerable extent, but carrying it still further so as to have control of the product.

Two years ago the Elevator Company decided to establish the Saskatchewan Co-operative Creameries, Limited, and two-thirds of the creameries of Saskatchewan have entered that company; they have about 19 creameries and two central cold storage plants, and they have another in the course of construction. During the past year, that company has shown a very large profit. They have found that unity of management has enabled them to make material economies, and give them far greater control of their product.

Last September, we approached the Directors of the Eastern Dairymen's Association and the Western Dairymen's Association, and they appointed two representatives to meet with our committee from the United Farmers, and that combined committee has been carrying on the work since then. We held a meeting some time ago, in Toronto, and a whole afternoon was spent discussing these things, and the unanimous conclusion was that if such a company could be launched here in Ontario, it would be a great forward movement in the dairy industry.

There is one big difference in Ontario from the West. At the time they started the Elevator Company, the farmers were being taken advantage of, and it is pretty well recognized that the factories in Ontario are not getting any undue profit out of this business. In one way, it will not be possible to make economies that otherwise would be made, yet it should be possible to make very great economies.

We went to one of the large firms that sells dairy supplies and outlined to the manager what is proposed, and asked if their company would be willing to make any material reduction in supplies to such a company. He said "Naturally we would. We have to maintain men on the road to visit these factories, and we have trouble in making collections, and if we can sell supplies to one representative company for 500 or 600 factories, it would mean a great saving to us." The Saskatchewan Creameries saved \$5,000 this year in buying two lines of supplies. Very material savings can be made in many ways.

I recently arranged with the Hon. Mr. Crerar to have three representative dairy farmers from the East go to Saskatchewan and look over the situation independently and gather all the information they could about it, and come back and report. We only got word about a week ago that we could do this, and we arranged to have Mr. Donaldson, Mr. Empey and Mr. Anderson go out to the West. They came back last night, and I believe they will be in a position to give some additional information.

This matter was discussed at a meeting of the United Farmers, and the Hon. Mr. Henry has requested that the matter be brought before this Association, and if you approve of it, he desires that we come back to him and lay the facts before him. The Saskatchewan Government has been behind both these companies from the start. They have not given much direct financial assistance, but they gave them a special Act of Incorporation, and assisted them by giving them a loan, in return for which they took adequate security.

As to how the factories would be taken over: In Saskatchewan they have a very novel method. Stock which can be purchased at \$50 in the first place, they increase to \$67. They decided they would appoint arbitrators to visit the different creameries and value them. The Government appointed one arbitrator and the local men appointed another arbitrator, and these men visited the different creameries and went into them thoroughly, and then said what they considered the property

was worth, and the patrons were given a chance to say whether they would take that price, and if they did they swapped the local stock for stock in that company. They issued a certain number of \$25 shares and \$100 shares, and they took over 19 creameries.

It is hoped that this matter will be carefully considered here because, if it is operated in Ontario successfully, it will go a long way towards revolutionizing the basis upon which we have been conducting our dairy industry in the past.

M. N. EMPEY: I do not propose to keep you but a very few moments. We were appointed hurriedly a week ago Saturday night, when we received a telephone message asking us to take this work up, and we started on Tuesday morning for the West, and we have been travelling day and night almost ever since. We had one day in Winnipeg and two days in Regina. I had hoped to have had a little more opportunity to-night to present a well prepared report upon the question. We were wonderfully interested in the advancement made by the United Grain Growers' Association of Winnipeg. We visited the offices of the company and were courteously shown around their different departments. Their offices are in a large building owned by themselves. Then we were driven to warehouses in the north-eastern portion of the city, which are 100 feet wide by 400 feet long, with a loading platform nearly half the size of the building outside. The platform was filled, showing the extent to which these United Farmers of Manitoba and Alberta have extended their business. We went hurriedly to Regina, as we were particularly asked to investigate the Saskatchewan Dairy Co-operative Company.

There we met Mr. Logan who was very proud to give us all the information at his command, and to furnish us with reports and financial statements, and it all went to prove that the company was in the very best of financial standing. The business they have done since taking over these creameries has been wonderful. After making provision for paying taxes and all other charges, they made a profit of \$75,000 last year, and they have no desire to go back to the old way of doing business. In fact, they have an application from the independent creameries to be taken into the company.

We visited the local plant in Regina. Five directors are appointed at the annual meeting of each local company and one representative delegate to represent them on the General Directorate. It is very strange to me that we could not just bring ourselves, as Ontario farmers, to see as they have seen, the immense advantage of the work they are doing. They were forced into this in order to counteract the influences that were working against them, not only as dairymen, but as grain growers, and they have succeeded wonderfully. I cannot see for one moment why the project could not be successfully carried out here in Ontario. I think it would be wise to go slow and get thirty or forty factories willing to go into it, not with the object of crushing the factories that are not willing to co-operate, but with the object of advancing the interest of the cheese industry—in the first place, to improve the price. We have had a good deal of help from the Department of Agriculture, and the dairy industry has been advanced wonderfully, and I am sure we ought to be grateful for the assistance that has been given, but there is still room for improvement. Mr. Herns and Mr. Publow are able to tell you that. We can make great improvement, and I think great improvement can be made by co-operation and organization and by putting our factories in better condition, and by making the patrons of the factories realize the importance of putting up a better product.

I think these are very important matters. In the West, the cream is paid for in three grades with a spread of 5c. between the first and third grades. In that way, the individual patron, when he sees his neighbor getting 50c. a pound for his butter fat, and another getting 45c. and himself only getting 43c., begins to look around and find out his weakness, and I believe if we could get our patrons of cheese factories and creameries to send a better product to the factory, we would make a great deal of progress.

WORDS OF WELCOME.

In extending a welcome to the delegates, MAYOR PLATT emphasized the importance of agriculture in general and dairying in particular, and impressed those in attendance with the responsibility resting upon all in the period of reconstruction. Mr. E. Gus Porter, M.P., Belleville, in giving a warm welcome on behalf of the city and the riding, referred to the high quality of the cheese produced in the Belleville district—the pioneer cheesemaking section in Eastern Ontario.

ADDRESS.

HON. T. A. CRERAR, MINISTER OF AGRICULTURE FOR CANADA, OTTAWA.

I am very glad to be here to-night, and I will say with entire candor that I feel flattered that I received the invitation to address this Dairymen's Convention, because it is the first Dairymen's Convention—and I almost blush to confess it—that I have ever attended. I am a Westerner, and have lived there all my life, and I often think that, unfortunately for our Western agriculture, the dairy industry has not, up to the present, received the attention that it deserves and that it should have. While I have never attended a Dairymen's Convention, I am not a stranger by any means to farmers' conventions. I am sure you have heard of the Grain Growers of Western Canada. It has been my privilege to have attended practically all the conventions held in the three Western Provinces during the past ten years, and so if I cannot lay claim to any special knowledge of the great dairy industry of Canada, I can lay claim to at least a good working knowledge of the other end of the game, as far as farming is practised in Western Canada.

I was particularly glad to come here because one of the previous speakers of the evening stated that this district was the pioneer district in Ontario in the dairy industry, and I am very glad to know that it has maintained its reputation. I have been informed that the cheese shipped from this immediate vicinity during the present year have not been excelled in quality, and, in fact, have not been equaled in quality by that shipped from any other portion of the Dominion. (Applause.) I say that, with some little pride, for the farmers of this district.

I thought it might be interesting to the farmers and those interested in the dairy industry here to-night to have a word from me in respect to the somewhat numerous restrictions and the control that has been exercised over the dairy industry during the past year or eighteen months. The necessities of war, and the uncertainty a year ago, and even six months ago, as to when it would end, and the imperative necessity of conserving the food supply of the world to the

greatest possible extent, made it necessary to impose restrictions, not only upon the dairy industry but upon a great many other industries as well. The war brought about an entire change in the method in which business was carried on between America and Europe. As soon as our Allies in Europe became fully aware of the gigantic task that lay ahead of them, if they were to defeat the Central Powers and maintain the liberty of the world, they set themselves with wonderful energy to organize every possible service that had to do with the prosecution of the war. They created an Inter-Allied Commission, of which there are really two in America, one a wheat exporting company dealing with the purchase of all cereals and flours, and the other an Inter-Allied Produce Exporting Commission that handled the purchase of dairy products, meats, eggs and so forth, and as a department of the latter, there was organized in Canada over a year ago, in fact almost two years ago, a Dairy Commission, with headquarters in Montreal. It was necessary to take some action towards establishing prices in many of these commodities.

In ordinary times when you have your traders from the different places in Europe buying in the market, you have competition that maintains stability in price, but it was quite evident that when all that buying was centralized in one agency, it became absolutely necessary to have some organization composed of two or three individuals to be entrusted with this purchasing power, so this Dairy Commission was organized in Canada.

When we were considering the personnel of the Commission for the year that has just closed, I was very glad indeed to act on the suggestion that had been made to me by several dairymen that the producers should have a representative upon that Commission.

That principle was followed by the creation of a Board of Grain Supervisors that had to do with the handling of the grain products, and several farmers were placed upon that Board. I am very glad to say that the farmers' representatives rendered invaluable service during the past year in solving many problems that came before the Commission.

The requisition of butter was not a very difficult matter to deal with. The situation was simply this: Early last summer the Food Controllers of the Allies met in London, and to use the historic phrase of President Wilson, "Decided that during the period of the war they would eat at a common table." One of the great difficulties the British, French and Italian people were faced with was a serious shortage of food, and in August that shortage became very pronounced. The United States Food Administration commandeered, at the end of August, 60 per cent. of the total stock of butter in the United States at that time, for shipment overseas. It was handled at a price averaging about 46c. at the seaboard. A request was put up to Canada that if possible we should contribute our share, as far as possible, to make up the deficiency. That raised the question of requisitioning all butter, and it was thought better to do it in the manner in which it was done, as that procedure would be the least likely to disturb the existing market conditions.

The Government is in rather an unhappy condition, especially in war time, because of the great mass of consumers on the one hand, complaining of the great increase of the cost of living, and the producers on the other hand, saying the cost of production had gone up and they were naturally anxious as to the outcome of our action in respect to this requisitioning of butter. Canada was asked to restrict her consumption of butter to two pounds a week—32 ounces of butter per week. In Great Britain at that time they were down to one ounce per week per person. That will give you an idea of the very great need there was, and

any person who knows anything of food values, knows that it is absolutely essential to have fats if you are to maintain the health and vitality of the people.

There was also the question of oleomargarine. One of the first problems I had to face after I became a member of the Government was the question of oleomargarine. The increase in the price of butter had made it difficult for many people in Canada to secure the necessary requirements of fat, and strong representations had been made to the Government by the Medical Associations and other organizations, urging that the manufacture and importation of oleomargarine should be permitted as a war measure, and so the change was made. There seems to be some little misunderstanding or apprehension as to whether it shall continue in the future. I have just this to say in that respect, that the manufacture and importation of oleomargarine into Canada was adopted as a war measure during this period of abnormal conditions, and I think I can quite safely assure any who have any apprehension upon that point that that will not be made a permanent fixture, unless by legislation through Parliament, (applause) when every person will have an opportunity to have their say. I do not wish to be understood as stating that the measure may never go to Parliament, but I simply wish to state that it is a war measure, and there is at the present time no discussion and no suggestion, as far as the Government is concerned, that it should be a permanent fixture.

When I was asked to give this address, I commenced to study a little more closely than I had done before just what the status of the dairy industry in Canada was, and I was rather surprised. There is in Ottawa a Branch of the Department of Trades and Commerce, known as the Bureau of Statistics, and it is the business of that Branch to gather statistics of all industries in Canada, and to put them in proper form for the public. I find that during the year 1917, the statistics we have, show that there were in Canada 3,418 cheese factories and creameries; of these, 949 were creameries, 1,900 cheese factories and 549 combined cheese and butter factories, and 20 milk condenseries. These were patronized by over 250,000 patrons. I was surprised to know that over 3,000 of these factories were located in the Provinces of Ontario and Quebec. Down in the Maritime Provinces, fish occupies a large proportion of their energies, and in the Western Provinces, the Prairie Provinces at any rate, grain growing and stock raising for beef purposes, is the great industry as far as agriculture is concerned, and in British Columbia mining and lumbering are the chief industries, so that it is not surprising to find 3,000 of these factories are located in the Provinces of Ontario and Quebec.

The production of creamery butter during 1917, in the Dominion, was 87,000,000 pounds, valued at \$34,000,000. The production of cheese in this same year amounted to 195,000,000 pounds, valued at \$41,170,000. The capital invested in cheese factories and creameries throughout Canada in 1917 was almost \$20,000,000. The number of employees was 10,346, and the total wages paid these employees \$5,446,000. The estimated value of the dairy products of all kinds from these factories in Canada, was \$93,800,000. The estimated total value of dairy products of the Dominion of Canada for the present year, and I include not only the output of factories, creameries and condenseries, but also the milk sold in towns and cities and the dairy butter manufactured and sold, amounts to almost \$200,000,000. When I got these figures I was a little surprised, because I had really no idea the dairy industry in Canada had grown to such splendid proportions.

In the West, where we grow grain nearly altogether, we measure everything by the value of the grain that we produce, and if we have a good crop, like we

had in 1915, when we had 385,000,000 bushels of wheat, the income in money from that was very great.

The dairy industry is not established in Western Canada in any large way, and I am glad indeed to note that it is so well established in these old Provinces, because no country, as far as its agriculture is concerned, can soundly and thoroughly develop if the farmers of that country have all their eggs—so to speak—in one basket, and that is the lesson we in the West are commencing to learn.

I am convinced that there is a great future before the dairy industry in this Dominion and that we are just at the fringe of great possibilities in its development. The dairyman is producing a commodity that is absolutely necessary to the maintenance of human life, and consequently he is certain of always finding a market for it. There must go along with his work, conditions that will enable him to carry on the industry profitably, and I would like to touch on that for a few moments. It may be of interest to some of you to have some information upon that point. I was very much interested recently in reading a book entitled, "Rural Denmark." Fifty years ago the peasantry of Denmark were perhaps the poorest class of peasantry in Europe, and that is saying a good deal. Denmark, as you know, is almost in the North Sea, and is swept by the cold winds of the North Sea and is a low lying country. Its soil is not the best and yet in fifty years, the farmers of Denmark have revolutionized that country in an industrial sense, and also in a political sense. In an industrial sense they have, by skill and industry and energy, converted what was practically a wilderness into fertile farms and blooming fields.

One of the greatest things that contributed to their success, was the dairy industry. To-day in the markets of Great Britain, Denmark is our keenest competitor. What they have accomplished has been brought about by the application of skill and the adoption of modern methods. They aimed first of all to secure the best class of dairy stock that it was possible to secure. They learned the lesson that it was poor policy to have a poor dairy animal. I can speak frankly to farmers upon this point, because only eleven years ago farming was my business, and I know all about it, even to the extent of batching for two years on a homestead and doing my own work and running my own farm, and I do not want any of you farmers to think I have not a practical working knowledge of the farming business.

We in Canada can profitably study the lesson they had in Denmark. What does it mean to have a poor animal on a farm? It takes just as much care and a little more feed, and you do not get nearly as much out of it. That is the absolute truth, and consequently the farmers of Denmark in their efforts to reach as near perfection as possible, laid it down as a cardinal principle that they would keep good animals. That was point No. 1. No. 2, they recognized the value of quality in their output, and they set themselves to study the most modern methods and got the finest machinery they could for the manufacture of dairy products.

There is nothing that helps to maintain your position in the market as quality, particularly in the dairy business; consequently we must pay close attention to the maintenance of quality in our output. The dairyman's business is only partially done when the product is manufactured. The old notion of the farmer, was that agriculture was a business that did not require a great deal of brain power to carry it on successfully, and that the main requirement was muscular energy and ability to work from four in the morning until ten at night. That notion, I am glad to say, is passing out of vogue. There is no business or calling

that presents such scope for intelligent application as this business of farming. The lawyer after he graduates from college and takes his degree in law, has practically his work before him. He has read the law; he has studied it and he knows it. The doctor is in much the same position. It is true he may carry on investigations along certain lines for new developments, but he is not called upon to have the diversified knowledge that farming calls for. If the farmer is going to be successful, he must know a great deal about the soil; he must know the relative value of the different breeds of cattle and all kinds of live animals; he has got to study the weather and nature in all its aspects if he is going to carry on his work successfully. Consequently the farmers are coming to know that if they will get the maximum of their effort, they must apply a little more intelligent planning and study, and a little less muscular energy.

What would you think of a manufacturer who turned out a certain quantity of articles, and when he had done that, simply stopped there? Assume for a moment that he did not study the market, and did not know what other countries were doing in his line of manufacture, and did not know what his fellow manufacturers were doing, and did not know what market would take his stuff or at what price he could sell it? How long do you think such a manufacturer would continue in business? He could not live. He has to study the market and follow his product beyond the point where he sells it, and that is what I want to impress upon the farmers here to-night, that if you are going to get the maximum reward for your work, it is not enough to stop when you have your product ready for the market. You must study the market, and how your stuff reaches the market, and you must see that it reaches the market in the best possible shape. It is not much use for a creamery manufacturer to make a first class quality of butter and take it to the railway station, and then allow that butter to be spoiled by being shipped in improper cars. He must see that the butter reaches the market in the best possible shape, and if you are wise you will not leave that to other people.

You are aware that ten years ago, the chief industry in Western Canada was grain growing, and for that matter it is to-day, but I am glad to note that our farmers in the West are appreciating more and more the value of keeping stock, and the herds in the West are increasing, and we hope in certain sections to have a great mixed-farming community in the future.

We find it necessary in the production of grain to study the markets, and we found some very interesting things when we started to study the market, and I want to tell you to-night very briefly what the farmers of the West have accomplished.

The farmers of Western Canada through their own Company own and operate to-day over 600 country elevators. We have over 5,000,000 bushel terminal elevator capacity at the head of the Lakes. The company with which I have been associated for ten years, and of which I am still the President, has over 35,000 shareholders. We have \$2,250,000 paid up capital, and we handled last year 29,000,000 bushels of grain. We handled last year over 4,000 car loads of stock through our own Commission agency. We handled over \$6,000,000 worth of goods. We have large warehouses in Winnipeg, Saskatoon, Regina, Calgary, and presently will have one in Edmonton. Several years ago we purchased large timber limits in British Columbia, and we are to-day operating a mill in that Province that turns out 75,000 feet a day of finished and unfinished lumber. We are manufacturing our own shingles and laths, and our aim is to ship that to our own farmers on the prairies. We are endeavoring in that way, to do our business for ourselves in a way that will bring us the best returns.

Fifteen years ago, our wheat was not reaching the markets of the world in its best shape. There were abuses going on that had to be rectified, and it was only through agitation and study by the farmers who were engaged in that business, that agencies were created that brought beneficial results. The benefits that have come from these operations have not resulted alone in a cent or two cents a bushel extra that we have received for our grain, or that we might cheapen the cost of the implements and other supplies that were purchased. To my mind, the great benefit and the finest results that have come from our efforts in that direction have been the increased interest, and as a result, the increased intelligence, on the part of tens of thousands of our farmers in their own business.

It is rather interesting to have meetings of farmers to discuss a balance sheet where your assets run into millions of dollars, and where it embraces a great many items. I will venture to say that there is not any business corporation in Canada, whose shareholders criticize and study more intelligently, its balance sheet, than do the farmers at our annual meeting.

The old idea still lingers that the farmer is a man to work with his hands, and that someone else should supply the intelligence and tell him what he ought to do. We can never rise to the full stature of manhood or citizenship under these conditions. The days have passed for that, and to-day as never before, we must apply intelligence, skill and ingenuity and ability to our business. I do not say this in any boastful way, but I simply pass it on as a thought to you in your dairy business.

The farmers of Saskatchewan have also recently organized a Co-operative Creamery Association on the same lines as the Co-operative Elevators. They have simply got their creameries into a large association, and in that way each creamery gets the benefit of the experience of all the others. Their work is centralized, and although they are just now commencing their operations, I am confident that the same beneficial results will come in the handling of their dairy products through their co-operative creamery system, as has resulted in the handling of grain.

The farmers of Denmark did not stop when they had secured good stock and good quality in manufacture of their raw material. They organized their co-operative associations and their co-operative cold storage plants, and they carried the thing right through to the markets of the world.

In Great Britain among artisans and working men, this co-operative idea has been carried on to a much greater extent than in Canada. Away back 60 or 70 years ago, they started in a very small way with a co-operative store in Paisley, that has grown now until there are great wholesale co-operative associations in Great Britain and Scotland. They have carried the thing to the absolute point of perfection as far as it is possible to go. The Scottish workman in Paisley buys his bread from his own delivery waggon, which is baked in his own bakery; the flour is manufactured in his own mill; the wheat is purchased and marketed by his own agent. We have had one of them in Winnipeg for 12 years. That wheat is purchased from the farmers through their own elevator. The Scottish Wholesale Co-operative Society have their own elevators on the Western Prairies, and last year they went a step further, and bought their own farms and are growing their own wheat. That is carrying the system of co-operation almost to the limit.

Don't depend too much on Government. There is proneness in the Canadian people to look to the Government to rectify all their ills and all their troubles. The most successful of our farmers' organizations in the West, are those

that refused to take any assistance from the Government. They needed the money in the early days, but somehow it is a quality in human nature that if you are leaning on someone else for your support, you never get strength to stand on your own feet. (Applause.) A public man once told me that the farmer was the finest leaner in the whole world. They always wanted to lean on someone.

The demand for dairy products at the present time, is greater than it has ever been in the past. We have just come through four and a half years of war. The group of men,—the autocracy, that wanted to fasten their peculiar ideas of Government on the world, has been defeated. Nevertheless, that has brought great responsibility to the Canadian people. I am not a pessimist; I do not think any man in the West could be a pessimist. I have had it mentioned to me so many times that we are all optimists in the West. But I think it is well to look facts squarely in the face, and as a result of the war, our debt in Canada has increased from \$366,000,000 to about one and three-quarter billion dollars. Our national income for all purposes prior to the war was \$130,000,000 or \$140,000,000 a year. We will require to raise for a great many years to come probably, \$275,000,000. In other words, we have to just about double the amount of our Federal income. That necessity arises through the heavy interest obligation incurred through the expense of borrowing. Our interest obligation will be very heavy, and there are also the pensions for our returned men, and if I know the Canadian people right, that is one debt that they will not fail to discharge. We have placed almost 500,000 men in England, and we have sent 300,000 soldiers to other parts of Europe. Over 55,000 Canadians to-night, fill graves in Flanders and France. Our men by their heroism, have placed the name of Canada very high upon the honor roll of the nations, and the obligation rests upon the Canadian people to see that these men who come back,—the maimed and the bruised and broken as a result of the terrible things they have passed through,—and their dependents in Canada shall not want; and I say again that this is an obligation that will be fulfilled by the Canadian people, and that means, we have got to intelligently study our plans for the future.

Canada is a country of wonderfully rich national resources. We have not used our heritage wisely and well in the past and of these resources that lie ready to be developed, that can be most readily converted into wealth, agriculture in my judgment stands first, and it is only by bringing our different agricultural developments to a high state of perfection that we can most readily and best meet the future.

Our farmers have a large part to play in this, and in the development of the dairy industry, lies one of the avenues whereby we can reach the goal of success. Canada is very favorably situated for the development of the dairy industry, particularly Ontario and Quebec. We have the great European market, and I look for the day when we will find a great market in the country to the south of us. One thing has resulted from this war and that is that the British Empire and the United States have been drawn much more closely together than they have ever been before. That is one of the finest things that has come out of the war. The United States is coming to the point where she is going to be an importing nation. The year before last, had normal conditions prevailed, she grew scarcely more than sufficient wheat to feed herself. The people of Ontario and Quebec are well located to satisfy the needs of the United States when that country becomes a food importing nation. More than two-thirds of the population of the United States lie east of a line drawn through Chicago, and you are just next door to that market, and you can more readily feed the people of New York than can the

farmers of Iowa or Ohio. Consequently I have no doubt that if we develop the industry in Canada, we will have a ready market for everything. You cannot develop unless it can be done profitably. That applies to the whole business of agriculture. It has been stated to me, and there is a measure of truth in it, that the individual farmer is not farming as intelligently as he should. Granted that by superior intelligence, he could improve his position, still there is more than that, if your agriculture is developed, and if it is to thrive; and in my opinion, agriculture is the mainstay of Canada and the basic industry of the country. A business man in Winnipeg told me that when they have a crop failure in Western Canada, there are no people in all that country, have as long faces as the business people in our cities, because they recognize that poor crops mean poor business, and good crops mean good business. Consequently the more profitable you can make agriculture, the better it is going to be for the whole business of the country, and we must first honestly and intelligently and courageously seek to improve our agricultural conditions.

The war has brought great changes. I think we are entering largely upon a new world, and I fancy that when these boys of ours come back from France and Belgium, they may have some questions to ask the Canadian people. They may have some ideas to place before the Canadian people. After all, what have they fought for? LIBERTY. They have fought as no other men could have fought and I want to say that to-day the Canadian corps in France stands unequalled as a fighting force over there. They have fought for the creation of a better citizenship at home, as well as liberty.

A year's experience in political life has given me a few interesting sidelights on the attitude of the popular mind as to the institution of politics. Sometimes it is put up very unfairly to our representatives in Parliament. It comes before me in various ways: Men will come in and say, "We want an expenditure of money in my constituency," and another member says, "My constituency wants this or that." We are inclined too much as individuals, to judge the value of our representatives in Parliament, I was going to say, by the number of scalps they can bring home at their belts after the session is over, in the way of improvements in their constituency. Individuals in Canada must get a new conception of citizenship. Where a country is run by an autocracy, the people are not responsible for their well being but in a democracy such as we have in Canada, where every citizen has a right to express himself as to how he wants to be governed, that responsibility is shifted from the autocrat to the individual, and you and I and every other citizen in this country cannot escape our share of responsibility for the manner in which our country is governed, and that is a truth that we want to take home to ourselves.

It is not an easy matter to govern a country such as Canada. It is a country of magnificent distances. We have a population of 8,000,000 people scattered over a territory 5,000 miles long and varying from infinity to a thousand miles wide.

I have faith in the Canadian people. My hope is to see a great people built up, not where we will have great extremes of wealth on one hand and extremes of poverty on the other hand, but where we will have conditions so that every man and every woman will have a fair chance of securing a square deal, and where every person has an opportunity to work out his own development and to secure for himself the maximum of happiness. No great nation can be built up in any other way, and no nation can ever attain to real greatness, that builds its founda-

tions for that greatness on material prosperity alone; it cannot be done. The same law applies to a nation as to an individual, and that nation will be the strongest and the finest in the world, where you put into it public conscience, and interweave into its laws those principles that we all understand and admire, and the finest type of individual citizenship. (Applause.)

ADDRESS.

HON. DR. CODY, MINISTER OF EDUCATION FOR THE PROVINCE OF ONTARIO,
TORONTO.

I am here to-night as an honorary member of the Eastern Ontario Dairymen's Association. My knowledge of cheese is chiefly that of a regular consumer. I am sure that no cheese I ever consumed, surpassed that which is produced in this banner district of dairying, in the Province of Ontario. And yet I have had a long connection with the cheese industry, for I was born and reared in the County of Oxford, in the neighborhood of Ingersoll. I would not presume to say which cheese is the better. My presence here to-night would warn me that I ought to say yours is the better; my loyalty to the county of my birth forbids me to go back on the County of Oxford, but if we want to have success in the Province of Ontario, we must work together, and the Western part of the Province joins in a generous rivalry with the Eastern part of the Province in producing that which is of the highest excellence.

I am glad that you have done me the honor to extend to me the great privilege of being here to-night to take some part in this famous convention. May I venture to say in the presence of our Western Minister, that the Province of Ontario is still the banner Province of the Dominion of Canada. This Province seems naturally adapted to mixed farming, which type of farming requires the highest measure of intelligence. You gentlemen who represent this Association are worthy members of the great army of agriculturists, and may I venture to say you are the very *cream* of the industry.

The war has taught so many, many things. Among the greatest lessons which it has taught, is that the fundamental element in national prosperity is production. In the last analysis, on the home side, and on the side of supporting the men at the front, the plough was our hope. The dairymen were our deliverers. We needed food, and we shall always need food, and ultimately the source of wealth of this Dominion must come from the land, either in the form of agriculture and its allied products, or from the forests and the mines. It is from production that the real wealth of the country is derived. You, therefore, who represent the production of essentials, will always remember the lesson that has been borne upon the men of the whole world in this crisis, that you are essential to the upbuilding and prosperity of any land.

I am glad that this convention is held in the city of Belleville,—a city famous in the history of this Province, a city of enterprise and intelligence, and holding the convention here, marks your appreciation of the unity of interest between the city and the country. You can never build up any organization on a basis of prejudice or class antagonism. If we are to be a great and prosperous Dominion, then the East and the West must pull together. At bottom, there is no fundamental antagonism in interest between the farmer and the dweller in the city, between

the man who tills the soil or makes cheese and the man who manufactures steel or wooden or textile fabrics. Never let us, in this Dominion of Canada, build up a nation on any class prejudice, or on religious prejudice. Standing together geographically, and religiously, and morally, and ideally, and educationally, as citizens of this glorious Dominion in the most glorious Empire, shall we realize the destiny God has in store for us.

I am glad that you are emphasizing the unity of interest between the country and the town, for the interest is one, and no nation or class or community will ever prosper ultimately at the expense of any other class. They may seem to do it for a time, but at last our interests are one and indivisible.

I am glad to be here to stand on the same platform with the Minister of Agriculture for the Dominion, and on the platform on which to-morrow night will stand the Minister of Agriculture for the Province of Ontario. Surely it was not a mistake to invite the Minister of Education to be a fellow worker with the Minister of Agriculture in our common aim to build up the Dominion of Canada. The Minister of Agriculture for the Dominion has with singular aptness quoted the example of Denmark; he has described to you the transformation that passed over the whole face of Denmark, socially, economically and in point of organization, by what? By the application of intelligence to the great agricultural and dairying industry. He has well pointed out that there is no calling in all our land that makes a greater demand upon the intelligence than the calling of the farmer. It is well then that the Minister of Education who is specially charged with the duty of trying to secure the best opportunities for the intelligence of our people, should clasp hands with the Minister of Agriculture, and together work for the people of Canada.

We cannot have too much intelligence in our country. A friend of mine from Pittsburgh told me a story about a negro who had been drafted for service in the American army. He spent a very long time in preparation, and he knew his drill to perfection, but as time passed on, he did not get overseas, and he was asked how he liked the service in the army, and he replied, "Well, boss, there is too much salute and not enough shoot." The questioner said, "Do you know, Sam, what you are fighting for?" He replied, "Yes, boss, I know what I am fighting for; I am fighting to make the world safe for the democratic party." (Laughter.) That was his interpretation of President Wilson's far famed phrase, and there are a good many of us who are inclined to fight to make the world safe for our country, safe for ourselves and safe for our political thought, and yet in our best and most patriotic moments, we all believe that we are here to make the country safe, and the world safe under a true democracy. Democracy has been vindicated on the bloody fields of France and Belgium. Democracy is here to stay. Democracy may have its faults, and there are occasions when benevolent autocracy may be better, but experience has proven in the whole history of the world, that people can be safely entrusted with democratic power. Democracy may stumble, and there may be a process of levelling down; let us set our faces against that, and have a levelling up into a true and worthy democracy, and make democracy safe for the world.

How can the world be made safe under democracy? Only by having a democracy that is honest, a democracy that takes an active part in public life, that appreciates its responsibility towards duty, and a democracy that is intelligent. Whatever may be said or done under autocracy, an unenlightened democracy is a danger to itself.

I have profound confidence in the people of this Province, not simply the people who live in our large cities or small cities and towns, but the people who live in the country, because it is from the country school houses and from the farms of Ontario that there have come no small share of the men who are leading public life, and the intellectual life and religious life in every department of Canadian activity. No one dare insult the intelligence of the farming community in this Province by saying that the farmer will not stand for education, and the farmer will not pay for education, and that the farmers do not want their sons and daughters to have the best education that can be had in this land, and the education best fitted to fit them for whatever duty lies before them, whether it is on the farm or in the city, or wherever it is.

I believe that you gentlemen represent one of the finest agricultural organizations in Canada, and that you are standing behind us in every effort we make to provide even greater and better and higher educational facilities for your boys and your girls. I am sure you are prepared to pay for a good article. You know a good thing when you see it, and you know you cannot get the best for nothing. I am sure that the people of the Province of Ontario who have not for a moment staggered in the past in providing abundantly the means for carrying on this great war for freedom, will not hesitate to spend whatever money is necessary to provide the best physical, mental and moral equipment to make their sons and their daughters noble and worthy citizens in this fair Province.

I believe in the people of this Province, and I know they will respond to the highest and best that can be put before them, for they appreciate the best. All of us understand, perhaps as we never understood before, how absolutely essential a sound education is in the programme of reconstruction. We have seen what happened in Germany, when for two or three generations, wrong ideals were taught in the schools; a system of education designed to train only the mind, and to leave undeveloped the moral and ideal side of the man. We have seen that it profoundly matters what kind of patriotic ideals are taught in the schools of our land. It became possible in Germany, after two or three generations, to produce a nation capable of these terrible and ruthless cruelties that have made humanity blush for humanity. We know, therefore, that in our schools and in all our educational institutions, and through the church and the home, we are called upon to teach, and teach, and teach the highest and worthiest ideals of citizenship and patriotism. We know it pays in the highest return, to teach aright the children of our land. We also have learned in this war that we seriously underestimated the power of our enemy. How did that enemy accumulate his wealth? How did he establish so many of the markets of the world? By technical education, by agricultural education, and by education all along the line. He trained his workmen, and trained his farmers so that they applied science and knowledge in all its forms to industry, to commerce, to agriculture. Let us learn the lesson from the enemy and be warned by the misuse of his powers. Let us believe that as we Canadians to-day—whether we like it or whether we do not like it—find ourselves thrown out into the very mystery of world life, we are brought into competition with people, and will more and more be brought into competition with the people of every country under the sun.

How are we going to compete? Only by making the best cheese that can be made in all the world, the best butter that can be made by the manufacturer. How are we going to have the best results on the farm or in the factory or in education? There is no royal road but by the application of intelligence, by the

pursuit of education and the application of results of education and the process of education to every department of life.

We to-day understand by education a great deal more perhaps than we once did. There was a time when we spoke of education, that we meant only the training of the mind—what we call “book learning.” We to-day understand education to imply something very much wider and very much deeper. We know first of all that you cannot have boys and girls doing good work at school any more than you can have them doing good work at home, if they are weak in body; if their teeth are in bad condition; if they suffer from adenoids and diseased tonsils; if their sight is not good; if they are hard of hearing. We know it is a bad investment to leave a child impaired and practically maimed for fighting the battle of life, so we feel that it is an integral part of our educational policy in this Province to see that every child in the Province gets a chance to be sound in body. (Applause.)

In many of the towns and rural districts, there is a system of medical and dental inspection of the children in the schools. We have never felt that it was a wise thing or a right thing to put compulsion on the people of this Province. We have felt that the people would rise to every occasion when it was presented to them, and I believe they will.

I want to put it up to you gentlemen, leaders in your splendid work, to look into the matter in every one of your local school sections or townships or counties, and see what more you can do than you are already doing to secure that every little child, every boy or girl in school is thoroughly sound in body. May I give you some most astonishing figures that have been gained by the recent survey? No people in the Province of Ontario have taken greater interest in the welfare of children than the Women's Institutes of our Province. All honor to the women who are the leaders and pioneers in almost every branch of child welfare. I hope the day is not far distant, in fact I am sure it is not far distant, when women will be made eligible to become trustees in rural districts, and I think there would be, if not a revolution, at any rate a very beneficial evolution in a great many school sections when the farmers' wives and leaders in Women's Institutes take their place on school boards.

One of the finest developments in the educational progress in the Province of Ontario has been the degree to which the women have come out as candidates for School Boards in our cities and towns, and here and there where women were qualified under existing Acts, they have run as school trustees, and wherever they have been elected—and they have nearly always been elected when they ran—they have at once made their influence felt and felt for good. For who, I ask you, is better qualified to care for and plan for children than the mothers of this land?

The Women's Institutes of the Province have made a medical inspection of some 20,000 children in the following counties: Lambton, Simcoe, Wellington, Lincoln, Manitoulin Island, Muskoka, Norfolk, Ontario, Kent, Prince Edward, York, Peel, Grey, Thunder Bay, Rainy River. In these counties some 20,000 children from our rural schools were medically examined, and I am going to give you the grim facts that were discovered. Nineteen per cent. had impaired eye sight. Sometimes that impairment of eyesight may be due to a wrong location of the light in the school or a wrong position of the blackboard in the school. Some person skilled medically would be able at once to detect the cause of such defect. Ten per cent. with defective hearing; thirty-three per cent. had trouble with their tonsils or were affected by adenoids; sixty-five per cent. were found to have defective

teeth, and you all know that the chief seats of infection of the human body are practically from the collar upward: If we have no trouble with the tonsils and throat and our teeth, we are apt to be in pretty good physical condition. That stirs us to thought, and that impels us to give more careful consideration than ever to the health of the bodies of our children, in this land.

That is one of the first elements in education in its broadest sense to-day.

The second element is the element of mental training, what we call the rudiments of sound education, and we still need these. Don't you, ladies and gentlemen, allow any cry for what are called practical subjects, however necessary and wise that cry is, to drive out the old fundamentals of a liberal education. You want your boys and your girls to be good scholars, even in the old-fashioned sense of the term. You want them to be able to employ their leisure well; you want them to be able to read appreciatively; you want them, as someone has well said, "to be good company for themselves." And the man who in the old sense of the term is the best educated, will be the most practical and efficient man when it comes to doing things. Let us never forget the old essentials of a sound education.

But we want something more, and therefore, in all our schools in towns and cities and country, we are introducing in the senior forms, manual training with reference to the locality, and manual training with reference to the work on the farm; household science for the girls, and this work has taken hold of the whole Province. It appeals to the imagination and the common sense of the people. One of the most interesting developments of this is the provision for a hot luncheon in the country school. You know how girls and boys have to tramp in the cold weather, long, long, weary steps carrying their lunch in a tin box, and you know in the winter time it is sometimes frozen by the time it gets to the school, and in nearly every case, the impress of printer's ink is on the bread. That is not good for their physical health. It is not good for their mental health, and one of the developments in connection with our Department in the interest of the children is the teaching of domestic science in the schools whereby there shall be, as a matter of training, a hot lunch served by the pupils themselves in the various schools. Wherever that is done, the health of the children has immediately improved. (Applause.)

As you all know, the Dominion Government gave to the various Provinces two years before the war, \$10,000,000 to be spent on agricultural education. The Province of Ontario received its share of that, and our schools received a share of that share, and we are teaching to-day agriculture from one of the best Agricultural Primers that has ever been issued, in 1,020 of our rural schools. You would be surprised to see how it has developed in the last few years. In the year 1903, agriculture was taught in four schools in the Province of Ontario, and in 1917 it was taught in 989, and in 1918, in 1,020. Twenty-eight of our High Schools are teaching more advanced agriculture. We have a compulsory course of agriculture in our normal schools because so many of the teachers there are going to be leaders in agricultural teaching, and we have a school in Guelph to give instruction to these teachers. Probably this year we shall add to our schools in Whitby.

At Guelph, I had the pleasure of being present and observing what was done. There were no fewer than 447 teachers taking this agricultural course.

Because we are members of a democracy, we are inclined to criticize the Government. I was glad to hear Mr. Crerar speak as he did about not depending too much upon the Government, and realizing that in a democracy you are the

Government. There is no getting away from that responsibility. You make the Government, and the Government has to do what you want in the long run, although I would not give a snap of my finger for a Government that had not the courage to lead sometimes, and did not wait to be pushed. Sometimes, perhaps, the Government that does what it thinks best for the country gets a bump. I would be gladly prepared for a bump if the leadership was for the good of the whole Province.

We are inclined to criticize one department after another. I know the department I represent affects every family in the whole Province, and comes in for no small share of criticism. I am getting accustomed to it. I have an open ear and an open mind, and I am inclined to receive suggestions for the betterment of our system and work, from every quarter from which they may come.

I would like to read part of this letter to you. Some of the people in this Province have spoken of the wonderful strides that have been made by our neighbors to the south, in the teaching of agriculture in the schools, and they have said, "Why cannot we do something like what they are doing?" Dr. Foght was brought across to speak to our teachers in Toronto at their annual meeting. I would like to read part of that letter written to Dr. Dandeno, Chief Inspector of Agriculture in our schools, and who has prepared one of the most excellent manuals of agriculture for publication. This is what Dr. Foght says:

"I wish to thank you very much for the most interesting and instructive Teachers Manual in Elementary Agriculture and Horticulture. I have read the manual through very carefully, and I find it a very valuable piece of work. Such a manual in the hands of every teacher, and faithfully used, should mean a great deal for agriculture and horticulture in the Province of Ontario. I only wish that the average American State was as far along in making agriculture in all its rural schools as practical as you are making it in Ontario. Our trouble is this, that we either make too much of our agriculture or that we neglect it entirely. In the larger consolidated schools, it is very nicely worked out, indeed, but in the one-teacher school, we are doing next to nothing. There you are ahead of us."

Sometimes it is good to get a bouquet from an expert authority of another land. It cheers up those who are bearing the burden of the work and receiving no small share of brickbats.

There is one feature of the rural education in the Province of Ontario that I want to commend to your consideration. It is not something upon which I feel as yet, able to give a definite and dogmatic opinion. We are studying the question in our department and the Government are favorably disposed to it, but want to get further information, and I think, want to know how it appeals to the people in the country. It is the question of consolidating some of our rural schools so that where schools are very scantily attended, a group of schools may be consolidated into one, and the pupils conveyed to this central school, so that they will not be deterred by weather conditions from attending school. We would have a four or five room school that would grow into a small high school or continuation school, bringing to the very doors of the people in the country a larger measure of higher education.

This would also admit of a social centre in the community. In every one of these consolidated schools, as they are worked out among our neighbors to the south, and in many sections of the Western Provinces where they are bold and brave in making this experiment, there is an assembly hall that serves as a centre of meeting, and as the site of a library and as a general gathering place and is a source of life and social fellowship for the whole rural community.

I want you to think about that. We do not want to do anything by way of forcing a scheme upon the people of the Province. It is not a question that can be decided very easily, and it must be adapted to the needs of the various parts of the Province, but I would like the Rural School Boards and the County School Board and the County Councils to consider the possibility of it.

Just another word before I sit down. You know even St. Paul in his epistle to the Philippians said, "Finally Brethren" in the third chapter, and went on for many more chapters after that. I am not going to imitate my ideal, St. Paul, but there is one thing I would like to say to you as members of this organization in this historic part of the Province. I have heard what the Belleville Cheese Board has done in connection with Red Cross Work. I know of your splendid gift of one day's milk, and I know how the proceeds of that milk and cheese were given by you to the women to provide material for them to work up into articles of cheer and help for your boys and our boys. I know how many have gone from Belleville and its neighborhood and from this district of Ontario in proportion to the population. You have had more men go to fight under the great Old Flag of the Empire, and for the greatest of all human causes, than any other district of your size. I know what you have done. It was my good fortune a few weeks ago to go over, almost at the climax of the struggle, and be in, almost at the finish, and I want to say that if any blessing comes back upon those who have done anything for our soldier boys that blessing will come back upon you. You did not need any one to tell you that the boys were worth all that you did for them. May I emphasize what the Minister of Agriculture has said in that respect.

It was my good fortune the other day, in old London, to be invited to a dinner given by the famous General Smuts—a man who, a few years ago, was fighting us as a Boer leader. General Smuts gave a dinner to a group of American editors, and to a few others, and I happened to be among the circle of those invited to be present. One of the guests was General Seeley, who commanded our Canadian Cavalry Brigade at one time, and I want to tell this story, because it is one of the most thrilling things I have heard. General Seeley moved a vote of thanks to our host, General Smuts, and he said: "I do it with strange feelings. I was in South Africa in the year 1900; I was in command of a British Force ordered to capture a certain kopje. There were not very many Boers on the kopje, but on the other side of the hill there was a river, and across the river there was a strong Boer commando. We were expected to attack it or be attacked by them. One of our Boer captives said to me: "Do you, sir, happen to be a member of the Inner Temple?" That is one of the great legal institutions—great society of lawyers—of Old London. General Seeley said, "Yes, I am a member of the Inner Temple." "Well" he said "the commander of the Boers on the other side of the river is also a member of the Inner Temple." Then he said, "Do you by any chance happen also to be a graduate of the University of Cambridge?" "Yes," said General Seeley, "I am a graduate of the University of Cambridge." "Well" said the captive, "the man on the other side of the river is also a graduate of the University of Cambridge, and his name is Smuts, and by the way, there he is." And General Seeley said, "I took the nearest rifle I could get, aimed as straight as I could at that Boer leader, and fired, and missed him. And he is my host this evening whose health I now have great pleasure in proposing."

"More than that," he said, "Another curious thing fell to my lot. I happened to be Secretary of State for the Colonies when the bill was brought in, and it was a wonderful experiment to grant free Government to these former Boer colonies

in South Africa, and by that bill my Boer commander became a member of the British Legislature, and so it is with very strange feelings that I propose his health to-night."

I was called on at the end of the meeting, because I happened to be the only Canadian present, to respond to the toast of the Overseas Dominions, and naturally having just seen what our Canadian boys were doing, I was not very humble or modest, as I tried to proclaim the heroism and achievements of the Canadian Corps. After dinner was over, General Seeley came over to me and said, "You did not say one word too much about the Canadian Corps. I know them; I was proud to command their Cavalry Brigade, and I want to tell you that the Canadian Corps has never failed to take an objective they were ordered to reach, or to hold a position they once had consolidated." (Applause.)

Mr. Crerar has put it in another way—that it is the finest striking force on that Western Front. I have gone over the desolation of these battle fields. I have stood on the very ground where, in those awful April days of 1915, the Germans poured out their poison gas. I was there when that spot was still within our lines, and I remembered that it was, because our own gallant First Canadian Division with scanty artillery and scanty munitions, stood in the breach and stopped the onward rush of the Hun towards the channel ports. Never can their glory fade. (Applause.)

I have stood on Vimy Ridge—perhaps the second great scene of their glory. When I climbed up it and marvelled how human beings ever scaled those heights and ever carried that mighty, massive ridge in the face of an armed enemy. It was one of the greatest military achievements of the whole war, and this is greater than any previous war. They did the seemingly impossible. That Ridge was held, when I visited it in October, by the 16th British Brigade, and the Brigade General, to whom I introduced myself as a Canadian officer, said: "Oh, the Canadians were magnificent. Why those fellows stopped at nothing—they stopped at nothing. Anything that Currie ordered them to take they took. They trusted Currie and Currie trusted them."

Vimy Ridge was held by the Canadians all through those awful months of March and April and May and June, 1918, when the Germans made one onslaught after another on the Western Front, and thought to win the prize of victory before the American troops came over. What stood firm on the Western Front? That mighty bastion, that great and only barrier of Vimy Ridge. The Germans went south of it by Cambrai; they went north of it by the Valley of the Lys, and General Currie told me that many mornings they did not know whether they should find themselves enveloped behind; he said "They never dared attack us in front." And then he said, "We armed every man of the whole Corps, non-combatants as well as combatants. We were prepared to die where we stood. We never would have yielded," and with a smile he said in his slow spoken, deliberate, mighty way: "But I think we would have killed so many Germans in the process that it would have ended the war there and then." (Cheers and applause.)

Then the third great achievement that it was my good fortune to see on the 8th of August, was the beginning of the triumphant battle of Amiens, the wonderful strategic victory whereby the Canadians gave the Germans the surprise of their young lives; the battle of Arras, whereby the great Wotan switch was broken in; the impregnable Hindenburg line was broken, and then the beginning of the end when they crossed the Canal du Nord and captured Bourlon Wood, and struck on

towards Cambrai. I happened to be there when the fight was on for Cambrai, two days after they captured Bourlon Wood. The woods were covered here and there with German dead; there had not been time yet to bury them or to bury the dead horses and mules. They were pressing on from Bourlon Wood. I looked down upon the sight of Cambrai and saw the suburbs burning to the right, saw a tank or two staggering along to the north, and saw our Canadian boys stealthily advancing in extended order, while they won the line between Cambrai and Douai. It was the beginning of the end. There was a hard German resistance, and you know our Corps was in the very thick of the fighting. They drove on. They stuck at it. They were determined that before the armistice was signed, they would reach Mons. It was at Mons that the Old Contemptibles fought their first fight, and it was at Mons, by the Third Division of the Canadian Corps, that the last blow was struck against the enemy before the armistice. That long, long, weary way is a road of tears and blood and agony, from Mons to Mons.

Those for whom you have worked and fought and prayed are worthy of the best you could have done for them. Yes, and they are worthy of the best we can do for them when they come back again. Many will never come back. 55,000 or more will never come back.

Just before I left France, I wanted to see one grave in one cemetery—the grave of an old Scotch friend, the grave of a man who has written some lines that will never die. You know his name, Col. John McCrae, artillery man and surgeon, who wrote those matchless lines, “In Flanders Fields.” It was a challenge to those who were strong and well and able to fight to come and take the place of those who had fallen. And McCrae’s body lies in the cemetery just out of Bourlon, in a little village looking out on the English channel—that water-way across which came tens of thousands to take up the “quarrel with the foe.” I remembered again, as you remember, the closing words of his poem. They are a challenge to us in Canada to make a new and better Canada, as they were a challenge to the men to take the place of the soldiers who had fallen. May I send out that challenge again to-night:

“To you from falling hands we throw
The torch—be yours to hold it high;
If ye break faith with us who die,
We shall not sleep though poppies grow
In Flanders fields.”

These men being dead, yet speak, and they challenge us in Canada to make this land worthy of the men who died for us. Shall we not learn the lessons God has been teaching us in the war? Shall we not erect in Canada, monuments worthy of the men who have fallen? We shall erect monuments of granite or marble in our squares. We shall erect tables of brass or marble in our churches. We shall erect windows richly decked in our churches. They deserve even a better monument at our hands, and the only monument that is worthy of the blood shed for Canada, is a Canada nobler, cleaner, purer, more intelligent, more healthy, more honest, where God is feared and men and women strive together to bring in upon us that commandment of God, where God’s will is daily done.

A hearty vote of thanks to the speakers by COL. PONTON and MR. H. S. KETCHISON brought a very successful session to a close.

JUDGE'S REPORT.

BUTTER.

JOHN H. SCOTT, TORONTO.

The butter shown at this exhibition is typical of the butter manufactured throughout the Province of Ontario. I have seen at this exhibition some very, very nice butter. By the rules of the association, all butter, in order to secure a prize must score 96 points or over; therefore the butter that got any of the prize money was very good butter. A great deal of the butter that is not in the prize list is characteristic of butter that we find coming out of storage to-day in Toronto. It has an oily, fishy flavor that apparently develops in storage. This question of storage is one of the things that the butter manufacturers of this Province must look into, and see if it is not possible to have Ontario butter come out of storage in better condition than it does.

CHEESE.

L. A. ZUFELT, KINGSTON DAIRY SCHOOL.

I must congratulate Mr. Publow and his instructors and also the cheese makers of Eastern Ontario on the excellent exhibit of cheese shown at this time. We could not ask for anything better in the matter of quality. There were so many cheese shown of excellent quality that we found it a matter of great difficulty to make any distinction in scoring the cheese.

All the cheese scoring 96 points and over, will be awarded prizes in proportion to the score. There are 320 cheese winning prizes out of a total of 476. Of the large cheese there were 290 out of a total of 372, or 78 per cent. scoring 96 points and over. Sixteen scored 99 points and over. The Cheese Makers' Trophy going to the cheese maker exhibiting the cheese having the highest score, goes to F. M. Murray, of Kemptville, on an October colored cheese, scoring 99.5 points. It is rather remarkable to have a colored cheese winning in competition with a white cheese; as a rule the white cheese score higher than a colored cheese, and it is very unusual to have an October cheese score higher than a September cheese, but I must say that we thought this cheese was the finest cheese we ever pulled a plug from. It was absolutely perfect in coloring. The texture was in our opinion almost perfect. And when we compared it with the best September cheese, in order to make our award, we put the two together and considering that this was a colored cheese, and it being much more difficult to make a colored cheese, for my part I decided that if there was any difference it should be in favor of the man making the colored cheese, and instead of marking the other cheese down we marked this one up and gave it 99.5 points, and we considered it was worth it. The trophy going to the instructor having the greatest number of points from his section in the four classes, September White and Colored and October White and Colored, goes to C. F. Flynn, of Sterling, with a total score of 5,484 points on 56 cheese, scoring 96 points and over. The second prize goes to J. Buro, with a total score of 4,393 points on 44 cheese. The third prize goes to R. T. Gray, with a total of 4,115.8 points on 42 cheese. Some of the other instructors are

worthy of mention: Mr. Howey had 38 cheese from his district scoring over 96 points, Mr. Irwin, 32 and Mr. Ward, 30. I think these instructors should be complimented on the effort which they apparently put forth to make this exhibit of cheese the finest ever held in Ontario. There were not more than half a dozen cheese in the whole exhibit that we had to score down very low.

REPORT OF CHIEF DAIRY INSTRUCTOR
AND SANITARY INSPECTOR.

G. G. PUBLLOW, KINGSTON.

I have the honor to present for your consideration my sixteenth Annual Report of the work of Dairy Instruction and Sanitary Inspection as performed by the Instructors and myself during the year 1918.

Since sixteen years ago when the first year of syndicated Dairy Instruction in Eastern Ontario was followed by the meeting of the E.O.D.A. at Belleville, the Dairymen have enjoyed many successful seasons, but it must be admitted that none have ever even equalled in a financial way at least, the year now closed.

In looking back to that time, I find that the average price of cheese for that year, although considered high, was about 13c. whereas for the year 1918 it will average well over 22½c.

In so far as our instruction work is concerned, the past season has also been satisfactory, but there is still much to be accomplished before we have reached perfection, and later on I will mention some of the weaker points of the Industry to which we must devote more energy and attention in the future. The nature of our work makes it necessary to follow some regular arrangement of details each year, particularly the tabulated forms, and while for a Convention audience these may not seem overly interesting they do represent a great deal of work done during the year.

The supervision of the Creameries was again under the direction of Mr. Zufelt, and I give herewith his report as furnished to me.

Number of creameries in operation	44
“ using pasteurizing cream vats	21
“ collecting cream in tanks	1
“ collecting cream in large cans	13
“ collecting cream in individual cans	30
“ of creameries using scales for testing	28
“ of creameries using moisture tests	6
“ of patrons supplying cream	6,500
Amount of butter produced from May 1st to October 31st	4,000,000 lbs.
Average selling price per pound of butter	44c.

Owing to the fact that our buttermakers have been giving more attention to the application of scientific knowledge, to the process of manufacture and the increased use of pasteurizers, the quality of creamery butter shows a very marked improvement over previous years, and whilst it is possible to obtain still further improvement from this source, we must not overlook the fact that the quality of raw material has a predominating influence on the quality of butter and that in order to produce the highest grades we must not only take advantage of all the improved methods in the process of manufacture but at the same time do everything in our power to encourage the production of a better quality of cream.

I would again strongly urge that the butter manufacturers get together and agree on some method of grading cream whereby those patrons furnishing a good quality of cream would be paid a premium over inferior grades. Most of the patrons are already educated in the matter of producing a high grade of cream and the reason that there is not more of this being delivered at the creameries is due to the fact that there is no inducement held out to encourage the production of better grades. We must recognize quality and be prepared to pay accordingly, otherwise, improvement is bound to be slow if it does not cease altogether.

To Mr. Zufelt's remarks, I might add that the number of creameries has increased sufficiently to justify the appointment of a butter Instructor who could devote all of his time to this department. Mr. Zufelt, having to spend so much of his time at the Dairy School and other duties, does not have time to spare, and if the best results are to be obtained, more must be done to give the creameries the full proportion of instruction which they deserve.

CHEESE REPORT.

CHEESE FACTORIES IN NORTHERN ONTARIO.—22 cheese factories and 3 creameries were in operation in Northern Ontario during the past season. In these 22 cheese factories 520 patrons furnished 7,807,141 lbs. of milk from 3,150 cows, making 759,726 lbs. of cheese from May 1st. to Oct. 31st. In the creameries, 237,285 lbs. of butter were manufactured from cream furnished by 390 patrons.

This is a new district and has no regular instructor, but Mr. McAllister, one of our Eastern Instructors, visited each of these factories twice during the season. I accompanied Mr. McAllister while on one of his trips and was much impressed with the future possibilities for dairying in this district, and the need of more education along dairy lines and I would strongly recommend that an instructor, specially for this district, be appointed for next season.

CHEESE FACTORIES IN EASTERN ONTARIO. There were 817 cheese factories operated in Eastern Ontario in 1918, twelve less than in 1917. These received from the Instructors 1,100 full day visits and 4,609 call visits in addition to those which I made personally. Four hundred and seventeen factories made improvements and five new ones were built, all representing a total expenditure of \$160,-612.00.

PATRONS. The number of patrons decreased from 30,658 last year to 30,088, almost 600 less. These patrons received 901 visits in an effort to improve the quality of the milk supply. These visits we are trying to increase from year to year, as improvement is always quickly noticed as a result.

NUMBER OF COWS. The number of cows was 279,849 a decrease of 5,201 from last season. The average production of milk per cow decreased from 3,650 lbs. to 3,300 lbs. for the six months extending from May 1st to Nov. 1st.

MILK DELIVERED. The total amount of milk delivered to the cheese factories during this period was 923,473,464 lbs. or nearly 68,000,000 lbs. less than in 1917.

POUNDS OF CHEESE. Corresponding to the smaller milk supply the output of cheese also decreased some 6,000,000 lbs. the total make being 83,782,495 lbs.

AVERAGE YIELD OF CHEESE. The average yield of cheese was slightly better being 10.99 as compared with 11.07 and 11.02 in the two preceding years.

MILK TESTING. Babcock and lactometer tests were made of 25,615 samples of milk and of these 20 were reported as being adulterated as compared with 75 in 1917. The owners of these 20 were prosecuted and fined a total of \$745.00. This is the first time in a good many years that we have had so few adulterations and I trust it may continue so.

For some time, owing particularly to the discussions on the payment for milk on a fat basis we have been endeavoring to have tests made of the milk of every patron in every factory in Eastern Ontario. We did not have this completed in time for my last report, but this year we have it finished and I have arranged it to show the number of samples varying one-tenth per cent. all the way from 2.5 per cent. up to 5 per cent.

Instructors and Groups	No. of factories in group	No. of full day visits	No. of call visits	No. of patrons	No. of patrons visited	No. of samples of milk tested for adulteration	No. of samples deteriorated	No. of sediment tests made	No. of factories pasteurizing whey	No. of factories making whey butter
Almonte—										
Fred Wright.....	43	53	153	1,894	24	423	.....	455	.....	5
Alexandria—										
C. B. Larry.....	39	49	300	1,188	32	1,108	.....	483	.....	.....
Brockville East—										
A. H. Wilson.....	44	68	117	1,427	38	812	.....	570	8	9
Brockville West—										
S. S. Cheetham.....	42	54	110	1,124	50	1,010	.....	150	7	22
Brockville North—										
Peter Nolan	43	46	220	1,216	26	961	1	350	.....	23
Belleville—										
Hugh Howey.....	35	52	233	1,572	67	3,600	.....	725	2	.....
Cornwall—										
J. Buro.....	43	55	301	1,513	50	466	1	250	15	3
Campbellford—										
R. T. Gray	36	58	160	1,298	28	2,136	.....	234	1	7
Kemptville—										
W. G. Gardiner	42	78	168	1,661	25	1,260	.....	425	.....	5
Kingston—										
Fred Clark	47	44	204	1,407	34	1,367	1	430	5	7
Peterboro and Lindsay—										
R. W. Ward	36	77	318	1,651	244	1,169	3	199	7	12
Madoc—										
Chas. Linn.....	34	73	209	1,126	26	235	.....	290	1	12
Morrisburg—										
C. W. Norval	46	42	193	1,436	34	864	.....	105	.....	32
Ottawa—										
Jas. Mitchell.....	42	61	359	1,299	21	215	.....	983	1	7
Ottawa East—										
A. McKinley	49	62	311	1,529	3	3,158	3	1,494	.....	3
Perth—										
J. H. Echlin	37	53	165	1,411	97	570	1	142	2	15
Picton—										
Jas. Irwin.....	39	53	282	2,239	12	1,879	3	319	3	14
Plantaganet—										
Jos. McAllister	39	46	245	1,190	18	793	3	466	4	1
Napanee—										
G. H. Bensley.....	39	35	193	2,701	35	2,701	3	33	.....	.....
Vankleek Hill—										
G. H. Barker	42	41	368	1,206	37	888	1	708	.....	.....
Totals.....	817	1,100	4,609	30,088	901	25,615	20	8,811	56	177

This has entailed a great deal of work I assure you but I trust it may have the effect of showing to all interested, the great variation in quality and the lack of fairness in paying for milk by weight alone.

SUMMARY OF 31,714 MILK FAT TESTS FOR 1917.

Per cent.....	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
Tests	36	122	157	219	317	1,007	2,301	2,724
Per cent.....	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
Tests	3,301	4,905	4,638	3,535	3,411	1,011	1,325	1,410
Per cent.....	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8
Tests	416	310	196	192	18	22	27	31
Per cent.....	4.9	5.0						
Tests	8	12						

Average % of fat in all whey tested	No. of factories paying by test	Average % of fat in all tests made	Lbs. of milk delivered from May 1st to Nov. 1st	Lbs. of cheese made from May 1st to Nov. 1st	Average lbs. of milk to make a lb. of cheese	No. of factories with cool curing rooms	No. of factories which made improvements in buildings or plant	Estimated expenditure, including new buildings	No. of new factories built	No. of new silos built	No. of patrons using milking machines
.23	8	3.60	40,487,357	3,924,745	10.31	4	10	5,593	....	14	6
.23	12	3.65	34,133,366	3,073,170	11.10	.....	11	5,000	....	26	40
.22	2	3.46	52,481,221	4,723,522	11.11	1	31	5,000	....	27	78
.25	4	3.50	51,973,003	4,588,680	11.10	3	36	8,000	....	.....	65
.28	.....	3.45	52,469,513	4,661,147	11.26	1	10	7,500	2	11	73
.27	.....	3.48	49,832,813	4,438,447	11.22	6	15	14,751	....	37	56
.24	15	3.74	53,207,164	4,937,259	10.77	4	43	8,725	....	12	53
.24	.....	3.43	39,079,109	3,391,456	11.52	3	30	13,725	1	23	26
.21	11	3.45	49,501,395	4,379,787	11.30	1	38	10,535	1	42	39
.24	1	3.48	43,657,770	3,987,000	10.95	.....	11	5,250	....	4	25
.22	11	3.37	32,213,727	2,964,525	10.86	12	33	14,112	....	41	14
.23	.....	3.50	37,902,022	3,363,877	11.26	3	11	20,275	....	2	64
.24	1	3.49	61,125,127	5,561,554	10.90	1	40	3,000	....	51	22
.26	21	3.47	47,439,715	4,318,178	10.98	1	21	5,364	....	48	33
.25	8	3.58	49,648,061	4,698,027	10.57	3	19	9,667	1	29	25
.20	.....	3.45	34,819,168	3,111,400	11.19	.....	13	7,950	....	18	20
.24	.....	3.40	55,229,845	4,886,603	11.30	10	6	8,389	....	7	59
.23	1	3.73	22,971,034	2,235,756	10.27	.....	15	1,848	....	7	2
.23	.....	3.63	76,689,774	6,980,316	10.98	5	10	3,520	....	7	77
.23	2	3.60	38,612,280	3,557,046	10.85	.....	14	2,410	....	14	24
.23	97	3.52	923,473,464	83,782,495	10.99	58	417	160,612	5	420	801

These tests indicate the variations in the percentage of fat in the milk sent to the cheese factories of Eastern Ontario.

SEDIMENT TESTS. Some 8,811 sediment tests were made of individual milks at the factories, 518 more than last season. More attention is being devoted each year to this feature of our work as their value is most noticeable in improving the cleanliness of the milk supply.

The details of all these tests I have arranged as usual in a tabulated form which I will not attempt to read now. The only figures that might be mentioned being the number of factories paying by test which total 97 and the 56 factories which pasteurize the whey. There were also 810 milking machines in use and 420 new silos were built.

WHEY BUTTER. During 1918 there were 177 cheese factories making whey butter, an increase of 26 over 1917 while 46 others skimmed the whey and shipped the cream to creameries to be manufactured. The total amount of whey butter was 649,530 lbs. valued at \$262,250 and the whey cream \$53,420.

QUALITY OF CHEESE. For an accurate report of the quality of cheese going to Montreal, I am indebted to Mr. Burgess, the official grader, who very kindly furnished me each week with a list of the factories whose cheese did not measure up to the first grade.

Everything considered, I would say that the quality was at least as good as usual but there were a number of rejections, particularly from the smaller, poorly equipped factories with inferior makers.

It is true of course that to a greater extent than ever before good cheesemakers were hard to secure, many enlisting for war services and others going to other industries where higher wages prevailed. The result was that in some sections it was impossible to get experienced makers and factory owners had only the option of closing their plants or accepting inferior services.

This is a most important matter to which I would like to call special attention in the interest of the future of the cheese industry. I have mentioned it before, but never has it been so vitally important. Not only have a great many of the better cheesemakers gone into other fields offering higher wages, but very few young men are learning the trade, so that right now the industry is facing and will face a very serious state if something is not done to make the inducements more attractive for a better class of men to enter this line of work.

In the districts where the factories are largest and better equipped, the makers are naturally more capable and the smaller number of inferior cheese is most noticeable.

To eliminate the manufacture of all inferior cheese may seem impossible but it should not be so and in fact in some sections there have been practically no second grade cheese during the whole year. We realize that to have finest quality three essentials are necessary, namely a clean milk supply; a properly equipped, clean factory and a capable maker and unless we have all three we cannot expect perfect results.

How best to obtain them, we are endeavoring from year to year to find out, and many means are suggested and tried. To my mind the grading of cheese and selling them on their merits will do more than anything else. Milk producers will be obliged to pay reasonable prices for the manufacture of their milk, then furnish clean, cooled milk themselves and see that capable makers are employed and given suitable equipment with which to work.

I am strongly in favor of having the date of manufacture marked on all cheese

at the factories, and for legislation preventing cheese being exported from Canada before it has reached a reasonable age.

I realize fully the impossibility of holding cheese safely for many days in many of the present day factory buildings, but if they cannot be held there they should be held in cool storage in central depots or at the seaports. It does not matter so much where they are held so long as they are right before being shipped to markets for direct consumption.

All our efforts of education to the factorymen concerning the suicidal policy of shipping green cheese, seem to be of little avail, as during the past season I found this practice going on to a greater extent than ever, many shipping cheese each week just out of the presses and I believe that this has been the cause of many cheese being classed as second grade or lower.

Another detrimental feature in connection with this point is the handicap placed upon our system of instruction, as when the Instructors call at the factories and find no cheese or cheese only a day or two old, they have little to guide them in the possible defects which may develop a little later.

During the war period, the market for our cheese has undoubtedly been less severe in regard to quality than it might have been and now that we are returning to peace conditions we must be prepared to face more stringent standards.

I trust that the dairymen may take due warning for these future conditions and make provision accordingly, for if Canada is to remain headquarters for finest cheddar cheese, there must be no let up in improving conditions surrounding the manufacture and placing the goods before the consuming public in the best possible shape.

In closing I wish to express my appreciation of the co-operation and keen interest shown by the instructors in putting forth their best efforts to bring about improvements.

I would also like to thank the factorymen and patrons for the ready assistance given the instructors at all times in the discharge of their duties.

SOME LESSONS FROM THE WAR.

J. A. RUDDICK, DAIRY COMMISSIONER, OTTAWA.

I am always glad to come to a dairy meeting in this part of Canada, because I know that I will find a large proportion of the audience made up of progressive and wide awake dairymen—men who come to the meeting with a serious purpose in view. Most speakers are inclined to flatter their audiences, and I dare say we are all prone to overdo that sort of thing at times. In the present case, however, I am able to produce evidence in support of the statement that this is a progressive dairying centre which is convincing, and at the same time very complimentary to the farmers of this district.

During the past two years the Cheese Commission and the Dairy Produce Commission have compiled statistics showing the percentage of cheese of different grades from the various producing districts in Canada, and I am very glad to say that the Central Ontario district, which comprises all that part of the province lying between the Kingston district and Toronto, has stood both years at the very top. In 1917 98.07 per cent. of the cheese from this district were graded No. 1. In 1918 the percentage of No. 1 grade was even larger, being 98.28. The percentage of No. 1 cheese

from all Ontario in 1918 was 94.84 per cent. These figures speak for themselves, and I doubt if another cheese producing district in the whole world can show such a high average of quality. I do not know of any higher praise that I can give you, and we will let it go at that.

The dairying industry of Canada has established another record in the total value of milk and its products exported during the year just past. Complete figures are not yet available but the total value of all dairy products exported in 1918 will be approximately \$47,000,000. The increase for the seven months ended October last was \$7,600,000 over the same period in 1917. A careful estimate of the total value of our dairy production in 1918, places it at something over \$200,000,000, of which about 25 per cent has been exported.

The exports of cheese show a decrease in quantity but an increase in value. The decrease in the quantity of cheese exported is more than made up by the increase in the exports of butter, and there has been a large increase in the exports of condensed milk and cream. Had it not been for the unfavorable weather in September and October, the showing would have been much better. At one time the receipts of cheese were ahead of 1917, but they fell off rapidly during the bad weather.

It is rather curious that butter increased at the expense of cheese, although the price of butter was relatively lower all season. The explanation probably is in the fact that there was an unusual demand for skimmilk for the feeding of young stock.

The milk producers have certainly had a strenuous time of it on account of the shortage of labor, but I hope the worst of that is over and that we may look forward to easier conditions for the future.

It is quite the fashion in these days, now that the war is practically ended, to consider everything in the light of the new circumstances in which the terrible conflict has placed the whole world. We do not, however, need to apply that much over-worked term "reconstruction," to the dairying industry. Probably no other industry has been so little disturbed or less interfered with during the past four years than the one which is represented by this Association and in the interest of which we have come together on this occasion.

The dairying industry has nothing to fear in the days which we are now facing, days over which there are some misgiving and doubt in more than one line of human effort. The dairying industry will continue to develop and expand as heretofore without interruption or disadvantages other than those with which it has always had to contend.

It is true that the manner in which the exportable surplus of our dairy produce will be handled next season has not yet been determined, and nobody knows if the Dairy Produce Commission will be continued, or if some other plan will be adopted. Everyone is anxious to get back to the accustomed channels of trading as soon as possible, but that may not be as easy as it would appear to be on the surface. It may be necessary, owing to the great scarcity, to continue some measure of control and distribution in the Old Country in order to prevent the supply all going to those whose purses are long enough to take it away from others of limited means. As long as control and rationing continues in the United Kingdom, it is quite probable that the authorities there may desire to handle the purchase at this end on lines similar to those followed during the past two seasons. I have no official information on this point, and can only give you my frank opinion on the situation, and of course I may be wrong in my surmises.

Of one thing you can be assured and it is this, the British Ministry of Food realizes that in order to encourage the production necessary to restore a reasonable balance of supply and demand, high prices must be maintained. They do not want low prices under the circumstances. Furthermore, the British Ministry of Food has always shown a desire to be fair and reasonable, as for instance when they increased the price of cheese last year from 23 to 25 cents per pound, one might almost say without the increase having been asked for.

All this, however, is rather outside of my subject, and I must not forget that the one I am supposed to deal with is "Some Lessons from the War."

Now the war, with all its results and consequences, provides a great many lessons for those who are willing to learn. We have been taught to do many things which in pre-war days would have been considered impossible. It has been demonstrated in a hundred ways that we never know what we can do until we get up against it good and hard, or until we try in real earnest. Then what a lesson in co-operation it was when the Allies combined and put all their forces under Marshal Foch. A most perilous situation, from the Allied point of view, was relieved at one stroke, and the result was never in doubt from that day forward.

But I must get down to something practical, and in doing so I propose to confine myself chiefly to one point. It is big enough and important enough to claim undivided attention. The suggestion which I have to make involves the whole question of the sale of cheese and butter. The idea is one which I have cherished for some years but having had some doubts on certain aspects of the scheme, I have never pushed it or discussed it at any length. I have, however, mentioned it on more than one occasion as the ideal method which ought to be followed if it were possible to carry it out.

The experience of the past two years during which all butter and cheese exported has been classified into definite grades and paid for strictly on a quality basis, has proved so satisfactory that it has paved the way for carrying out the plan which some of us have long had in mind. The plan in brief is as follows:

All cheese and butter would be shipped regularly from the factories to a central warehouse at Montreal, where it would be graded by a government grader, and then offered for sale by auction to the highest bidder, and according to the real quality of each lot.

I do not advance this scheme simply for the sake of proposing something new, but because I believe, after long and careful consideration, that it offers substantial advantages to the individual factory and to the industry at large, without imposing corresponding disadvantages. It would reduce the cost of marketing and add that much to the price of the butter or cheese as the case might be. The individual factory would make a direct saving in not having to employ a salesman. There would be an indirect saving by the elimination of the commission or salary paid to the country buyer, which amount would come back to the factory in the higher price which the exporter could afford to pay. The charge of auctioneering would be a mere trifle and all other expenses such as freight to Montreal, cartage, cooperage, and warehousing, must be paid in any case.

The industry at large would derive great benefit from the fact that all cheese and butter would be paid for on a strict quality basis. I do not know of anything which would be more effective as a means of improving the quality or of maintaining a high standard in our dairy products. There is, to be sure, some deduction for inferior quality under the present system. I am speaking of course of the practice before the Commission came into existence and which will prevail again when we get

back to normal conditions. I would remind you also that I am dealing with the whole of eastern Ontario and not any particular section, because I am aware that these remarks do not apply with equal force in all sections. What I wish to emphasize is the fact that any "cuts" in price which are made at present are not made on a uniform basis. The extent of the cut often depends more on circumstances than on actual inferiority, and worst of all, it very frequently happens that there is no deduction at all when the quality is inferior. Much depends on the state of the market. If there has been upward tendency in prices during the interval between purchase and inspection, the actual value of the inferior article may be equal to the price agreed upon. No fault can be found with the trade for following this practice for it is the natural outcome of the system. It is no real gain to the factory if a cut of half a cent a pound is saved under these circumstances. It only engenders a false sense of security which leads to further trouble. This lack of uniformity in making claims leads to suspicion and lack of confidence, so that when claims are made, they are very often not accepted as genuine. This feeling is fostered by the fact that the decision as to quality is wholly in the hands of the buyer. With independent and disinterested grading, the reports would be accepted as correct, and therefore the matter would be enquired into and some effort made to improve the quality without delay. It would be an easy matter to arrange for co-operation between the graders and the provincial instructors to ensure prompt attention where it was most needed.

Now this suggestion is not altogether new. As I have said, you have heard me mention it in previous addresses given before this association and in articles in farm journals. As a matter of fact, a somewhat similar plan is in successful operation by the Quebec Agricultural Co-operative Society, which society handled over 100,000 boxes of cheese and a considerable quantity of butter during the past year. It has been in operation for several years and the volume of business transacted has grown rapidly. Under the Quebec scheme the factories must become members of the Co-operative Society.

There is another matter connected with the sale of cheese and butter which would be affected by the inauguration of a central selling organization, and it is one which I mention with very great reluctance and no little hesitation. I only do so because I feel that someone ought to do so, and that it is in the interest of the trade generally that it should be mentioned. Most of you who have been connected with factories for some time are aware that in the case of very green cheese it is not an uncommon practice to allow one pound or more on the weight of each box. You may or may not be aware that this practice is very often followed in the case of inferior quality. That is to say, if there are a few low grade cheese in a shipment the matter is adjusted by undermarking the weight instead of accepting a reduced price. This is a bad principle to follow, even if it is done openly and above board, but it is not always so done. It is not infrequently an arrangement between the cheesemaker and the buyer without the knowledge of the salesman, and in such cases the action should be characterized by a rather strong term. This sort of thing arises out of the vicious system of cheesemakers and buttermakers guaranteeing the quality of their product.

There are salesmen, too, who are in the habit of receiving commissions from the buyers in connection with the sale of cheese, a practice which, to say the least of it, is not consistent with good service or good business. I repeat that I mention these matters with reluctance and with regret that the facts permit of them being referred to at all, for it may appear like casting slurs on a body of men who in the great

majority of cases are honorable and upright in every respect. These things are only possible in connection with factories under loose management, but unfortunately the business end of many of the factories does not receive the attention which it deserves, or which is necessary to obtain the best results. These evils, which I have mentioned, and they are evils where they exist, should be stamped out, and I do not know of any better way than by adopting the plan of selling by auction at a central point.

The cheese and butter boards which have been in existence so long would of course be abolished if a central auction system became general. I don't think there would be any occasion for regret on that head. As they are now conducted, with a few notable exceptions, they are little better than farces, although under the present system of country buying some such institution is necessary.

One can produce plenty of evidence to show the great improvement in the quality of butter or cheese where grading systems have been introduced. My first experience in this line, was in New Zealand 20 years ago. When I went out there as Dairy Commissioner, the first thing I had to do was to reorganize the grading system. In that country it is compulsory to have all cheese or butter graded, which is intended for export. It is universally admitted that the grading of the cheese and butter in New Zealand has been the most important influence in raising its quality to that high standard which gives the country's dairy products such a prominent place in the world's markets at the present time.

Most of you have heard something about the truly remarkable results which have been obtained in Alberta and the other prairie provinces since they adopted the grading system in connection with the sale of creamery butter. I could also show you that the cheese and butter handled by the Quebec Agricultural Co-operative Society averages much higher in quality than the cheese and butter from other factories in the province, which is marketed through other channels, without being graded. I find, from the records of the Cheese Commission of 1917 and the Dairy Produce Commission of 1918, that the percentage of No. 1 cheese, received in 1918 from the Province of Quebec, has increased by nearly 8 per cent. and the chief instructor and inspector, Mr. E. Bourbeau, attributes this increase to the fact that all cheese have been graded during the past two years. There was a higher percentage of No. 1 cheese from all districts in 1918. I shall not weary you arguing a point which is so clear.

Of course I anticipate that there will be some opposition to this proposal. The country cheese buyer—and by that title I refer to the man who buys for a Montreal house on salary or commission—could hardly be expected to look upon such a proposition with favor, and possibly some of the exporters located in the country may see reasons to object. One is always sorry to propose anything which may be inimical to the interest of any particular class of the community. In this case the regret is all the deeper because I number among my good friends many men who are country cheese buyers. The interests involved, however, are too large to permit of these personal considerations having any influence in the matter. Every improvement or reform entails a measure of inconvenience or hardship on someone.

It is quite possible that some of the Montreal exporters may have reasons for opposing the central selling, but I know that some of the leading houses would welcome the inauguration of such a plan. Opposition or no opposition, I feel convinced that this system will eventually prevail. There is so much in its favor and so little that can be put in balance against it, that it seems to me there can be only one outcome.

It will not likely come all at once. I do not think it would be desirable to make the change all at once. A gradual turn over would be more likely to succeed.

As I see it, there are two ways in which this scheme can be carried out. First a co-operative organization among the factories, to provide warehouses and facilities for handling the business at Montreal. The alternative is to have a private firm or company undertake the auction business at a fixed rate.

There are likely to be some new warehouses erected in Montreal in the near future and they will afford excellent facilities for handling a business of this kind.

In conclusion, I would say that this appears to be a matter to which the Dairy-men's Association of Eastern Ontario might very properly give some consideration. I would like to see this Association, as well as others, take a more active interest in matters of this kind. The dairymen's associations in Ontario were organized in the first place to disseminate information in regard to the manufacture of cheese. This function has been transferred by degrees to the dairy schools and the system of dairy instructors, and the associations, it seems to me, should devote their attention more to matters of policy and the larger aspects of the dairy situation. There is need at the present time for an aggressive policy, and the representatives of the dairy industry in Eastern Ontario must be up and doing if the important district which they represent, is to be kept well to the front.

NEEDS OF CREAMERY INDUSTRY.

JOHN H. SCOTT, TORONTO.

The Creamery situation in Ontario at the present time is unique in the history of the Province, in that the great bulk of butter manufactured in Ontario is consumed at home.

That does not mean that the production of butter has fallen off to any great extent but rather that new avenues of consumption have developed. A few years ago, cities and large towns were the only local market for creamery butter, but now almost every village grocer is selling creamery butter to supply local needs, in fact a good many farmers, nowadays, sell all their milk and cream and buy creamery butter for their own use. Dairy butter is becoming scarcer every year, and with the decrease in quantity, the quality has become poorer. Thus, the butter business is being revolutionized, more creameries are being put in operation every year, cream buying stations are being established in almost every village, in some sections of Ontario. In many cases the grocer or general merchant now handles the cream from the farmer, instead of and as he formerly handled, dairy butter. He buys the cream, tests it for fat and pays a flat rate for the fat, regardless of the quality of the cream, then sells to his regular shipping creamery or to the creamery that will pay the highest price for fat.

The competition for cream has become very keen in many localities, in fact, it has become so keen, that such prices have been paid for fat in many instances that any one familiar with creamery business, views with suspicion the methods in operation.

The war and all that it has meant, particularly by shortening the production of butter abroad, and increasing the cost of production at home, has caused the prices for butter to go exceptionally high. Since 1913, the year before the war, prices have advanced steadily on an average of about 5 cents per year, so that the market

has always been buoyant. This enabled butter dealers to buy butter at any time, at current market prices, and in a very short time sell again at a substantial profit. This market condition has not been conducive to improving the quality of butter but rather the opposite, because the buying of anything on a rising market tends to eliminate the fear of having goods of poor quality rejected, and so the butter buyer has paid very little attention to quality during this period of rising prices. The buyer's indifference to quality has crept back to the creamery owner and he in turn has allowed it to pass on back to the farmer. Except in very few cases, a flat price is paid per pound of fat, the quality of the cream regarding acidity or flavor not being recognized. Any effort that is being made to improve the cream, is by treatment at the creamery, after the cream has been more or less spoiled, rather than by an endeavor to pay for cream on the basis of what it costs to produce it.

The conditions prevailing to-day in the creamery business of Ontario, are a terrible outrage on the good old dairy cow, whether she be of the aristocratic pure bred, or of old brindle family. She gives to man the fat in the milk in a pure sanitary condition. Man in his ignorance and careless slovenly methods, and greed, allows that pure unadulterated fat to deteriorate so that much of it is wasted, becoming unfit for food for the human race for whom it was so well adapted.

Now, what are "the needs of the creamery industry," for that is the subject I was asked to discuss at this meeting? I shall endeavor to point out a few of the present "needs," from the standpoint of Ontario taking her proper place in the butter markets of the future.

I believe that the creamery industry in Ontario needs a compulsory law regarding the testing of cream. The farmer should be assured that he is getting a "square deal" when he produces a rich cream, as all creameries are asking for, for the manufacture of butter. The buyer of cream should be compelled to weigh the sample used for testing, and should be held in place by a penalty, for over-reading or under-reading tests. All are agreed that weighing the sample is the only absolutely reliable method of testing sour cream over 30 per cent. fat. Then why penalize the man sending the rich cream or the sort of cream asked for? A compulsory law requiring the weighing of the sample would bring the question of "over-run" down to a question of skill and workmanship rather than as it is in many cases to-day a "pencil made 'over-run'" manipulated so that the price of fat will be attractive to the producer. The farmer has a right to know that he is getting paid for all the fat that he is producing.

The creamery industry in Ontario needs to have more pasteurizing done. Pasteurization has gone away past the experimental stage. It is no longer a matter of conjecture whether pasteurization is beneficial or not for keeping of butter. It is an absolute fact. Canadian butter will never gain favor in an export market as long as unpasteurized butter is made in any large quantity.

The pasteurizing temperature is important. At the Dominion Dairy Conference held recently in Ottawa, 170 degrees, held for 10 minutes was agreed upon as the minimum temperature at which it is safe to pasteurize for storing purposes. Many creamery men say they will pasteurize as soon as they are assured of a premium on their butter equal to the expense connected with the operation.

Pasteurizing machinery and fuel are very expensive articles at the present time, and from a purely economic standpoint, a man might well hesitate to make the investment without knowing whether he would receive at least interest on his investment, but let me ask you one question: Has it paid the creameries of the Province of Alberta to pasteurize?

Pasteurization does not make all bad flavored cream good, although it may help to improve some, but experiments have shown that second grade butter made from properly pasteurized cream does not deteriorate in storage to the same extent that butter made from raw cream does.

The creamery industry of Ontario needs more uniformity of method of manufacture, particularly in the matter of texture and salting. A very large percentage of our butter does not have the moisture properly incorporated, due in large measure to insufficient working and temperatures too high. One cannot look at the butter coming down from the Western Provinces without being struck with the uniformity of texture, and while I do not yet see anything to be gained by carrying the shortness of texture as far as they do in the West, still I must admit that the texture of Western butter displays the fact that there is method used in the manufacture that is giving Western butter an individuality and a type that Ontario may very well imitate. Better judgment in working butter will well repay the manufacturer who is making the "loose moisture" type of butter. Loose, sloppy textured butter is rarely found to contain more than 13 or 14 per cent. moisture while if properly manufactured, might contain all that the law will allow and make a butter that will suit the consumer better because it will look better on the table and will spread more easily. It will suit the dealer better, because there is less shrinkage in storage and cutting, suiting the manufacturer and producer better by having more of it.

Wide variations are found in the quality of salt used. A number of butter-makers still adhere to the delusion that salt being a preservative, the more salt put into butter, the better it will keep. Others, I fancy, use large quantities of salt, because selling salt for butter prices is pretty good business.

Local markets accustomed in the past to the use of highly salted dairy butter, have acquired the taste for fairly heavy salt. The brands of butter that seem to suit the most fastidious taste among Toronto consumers contain not more than two per cent salt. Manufacturers should aim at reducing the quantity of salt to conform more with Western type of mild-salted butter, in order to be prepared for exporting our surplus across the seas with that from the other provinces, as Canadian butter.

The creamery industry of Ontario needs a better marketing system. The buoyant market of to-day will not likely continue. Prices must surely reach the peak some time soon. The war which was the primary cause of high prices, is, we hope, over, so that we may reasonably expect a declining market in the near future, for various reasons.

The production of butter in Ontario is almost sure to increase. Owing to the shortage of meat the world over, the demands for beef cattle will be keen. Production of cream especially in Western Ontario, is more or less a by-product of the beef industry.

With the return of men from war, many farms now unoccupied will be restocked with cream-producing cattle. New Ontario lands will be settled and this new country will soon be recognized as a factor in the production of butter in Ontario.

The settlement and expansion of the Great Western Prairie Provinces will increase, and with the settlement more butter will be produced. The Western Provinces have a limited market for butter in British Columbia, but the bulk of their surplus will have to move eastward, coming into competition with Ontario and Quebec butter. Western butter is coming east in increasingly large quantities and will continue to do so. Ontario cannot afford to be a disinterested party in the matter

of improving the quality of Canadian butter. The prairie provinces have done marvellously, and we are proud of their success. However, they did not adopt progressive methods until they were forced to go out and compete with New Zealand butter in the British Columbia market. Our position, I fancy, will be in the future similar to what they have experienced, only this difference, that our problems are so many and so very much more complex than theirs, that they will have to be worked out on lines adapted to our own conditions, but the aim of each province should be the same, viz.—That all butter exported from Canada, should be uniform in character, and will be recognized on the importing markets as Canadian butter, not as Alberta or Eastern Townships, or Ontario, and it is in the interest of each exporting province to work to this end.

The greatest need of course, in the manufacture of good butter, is always good cream.

A study of the report of the Government Butter Grading Station, reveals the fact that there is a tremendous need for improvement in the quality of cream supplied to creameries. Out of 31 creameries sending samples of butter to the Grading Station, 25 per cent. had over 50 per cent. second grade butter, defects principally caused from heated, sour and over ripe cream. Yet we had 5 creameries or over 16 per cent that had less than 5 per cent. second grade butter. Most of the creameries sending a high percentage of second grade butter did not send samples very long, as they did not want the quality of their butter advertised. They apparently dare not refuse the poor cream, or pay for it by quality. If they did, another creamery would take it in. All this has helped to educate the producer that care of cream for butter making purposes is out of date. What is the use? Unless the farmer has pride enough in himself to be satisfied with nothing but the best, he receives no encouragement to improve present methods.

We ask the question, "What is the remedy?" There is only one answer, that is, pay for butter according to its commercial value. Almost all commercial values are based on the quality of the goods, excepting butter.

After being in close touch with the quality of butter produced and the marketing of the same in Ontario for the last three years, I see no effort being made, either by the producer, the manufacturer or the dealer (except in a very few individual cases) to improve existing conditions.

The Dairy Branch of the Department of Agriculture, has endeavored to assist the butter trade, by putting at the service of the creameries, a Grading Station where butter can be graded for commercial purposes. The details of the system have been worked out during the last two years, and the station is now in a position to take care of grading of butter from all the creameries in Ontario. All that is required is for the manufacturers and dealers to get behind the scheme and make of it a success. The grading service has adopted a system of making boxes by stamping the creamery serial number, date of manufacture, and churning number on the boxes. This system, if used, would be of great value to butter dealers both for local and export market, in identifying and classifying butter for shipping and storage purposes.

DAIRY PRODUCE COMMISSION.

JAMES DONALDSON, PRESIDENT DAIRYMEN'S ASSOCIATION OF
WESTERN ONTARIO, ATWOOD.

I will speak for a short time on the work of the Dairy Produce Commission in Montreal. We as dairymen did not take offence so much at last year's prices, but we felt that we were singled out and the price fixed on our product and other lines were allowed to go without the price being fixed. I feel safe in saying that the matter has been rectified. I know that while last year the cheesemaker was kicking, this year the condensed milk manufacturer is kicking harder than the cheesemaker did last year.

When we met at Ottawa, we did not object so much to the price for cheese in 1917 as to the fact that condensed milk was allowed to soar to any price they could get for it. We met the British Food Representative, and he was anxious that we should sell our cheese to him for 22c. The fact of the matter was that the United States were offering to sell cheese at 22c. I did not feel like taking 22c. I know that Mr. Ruddick did not feel like taking 22c. I knew that I had Mr. Ruddick behind me in the matter, and I virtually refused to accept 22c. I stated we were making a better article than the United States and it was unfair to ask us to sell our cheese for the same money. We were under war conditions and the epicure was not getting our cheese, our cheese was going to the soldiers in the trenches, and any cheese, no matter where it came from was worth just as much to him. It was all one big family of soldiers who had to be fed. It came down to this that they would pay just what the British Minister of Food would pay, and I asked him if he would cable and he did so, and we succeeded in getting the price raised to 23c. The price paid by the buyers here or at Brockville we had nothing to do with. You knew the price was 23c. at Montreal. We got less for our cheese in the West than you people got here because it cost more for freight. There were complaints as to the weights in Montreal, and I looked into the question as well as I could. I saw cheese that I weighed in my own factory and they did not hold up to that weight when they got to Montreal. Our cheese were sent out very green, and that is one reason why the weights did not hold up. From the investigations that I made, I have every reason to believe that the Montreal weights are correct. Some people have asked why it was necessary to have this commission. I did not understand it at first, but after looking into the matter and having to do with it, I had no doubt of the necessity of the Commission. There was a great shortage of boats, and a great shortage of freight space, and then there was the danger of submarines. If the Admiralty had not come forward and ordered the boats to call at Montreal and to provide space for the cheese, we would not have been able to ship any cheese from this country. The greatest secrecy had to be observed with regard to the reporting of these boats. They came up without any report as to their coming, and the cheese had to be ready to be loaded within twenty-four hours. Each boat could take so many cheese, and that had to be allocated through the office of the Commission. and we have never had a word of complaint from any of the Montreal houses. My part of the work was very easy, as I did not have to do any of the detail work as that was all attended to by Mr. Alexander and his staff. He has given the Commission a great deal of faithful service, and I know for a positive fact that he has never benefited from it.

Some farmers have objected to the system of inspection at Montreal. One of the outstanding features of the life of Mr. Burgess, the Inspector at Montreal, has been his fair, candid, out-spoken manner, and I believe the work done by Mr. Burgess at Montreal has been as fair as it was possible to be. The grading of the cheese this year was just as easy as anytime in the history of the system. The Dairy Commission was the most cheaply run commission in Canada. The cost of running the Commission is a fraction so small that you can hardly get it on paper. There was \$47,000,000 worth of business done.

Now I want to say a few words on the commandeering order on butter for which we got so much blame. We sent our boys over there, and you know how nobly they did their part. It was up to us to not only feed the army but also to feed the civilians of Great Britain and France and Italy. You all know how we felt when that reverse came to the Italians about a year ago, and there was danger of the whole country being overrun. We were told that that reverse was caused by German literature circulated among the Italian army, and perhaps there was some of that but, gentlemen, the principal cause of that reverse was lack of food. The question came to us by cable; the British people were only getting two ounces of butter per week, and the stores in sight would not support that allowance. The British people to-day are only getting one ounce of butter per week. When that cable was received, a meeting was called of the Dairy Commission at Montreal and I went to that meeting. What could I do? What should I have done? It was necessary to make a decision in a hurry and we did so. I said, commandeer every ounce of butter in Canada. I said I will take every ounce of butter from my own home and every ounce of butter in Canada for six weeks if it is necessary to win this war (Applause.) We have the statement from the British Minister of Food that the action that we took at that time saved the situation, and I think that ought to be a good answer. It has been stated that Mr. Alexander made money out of that transaction; I want to tell you that out of 122,000 boxes of butter handled, the firm of James Alexander & Co. only handled something like 2,200 boxes. Now I want to say a few words as to our trip out West to gather information with regard to the Saskatchewan Co-operative Association. We have felt for sometime, and no doubt there are gentlemen here who have felt, that dairying was not making the progress it should in Canada. We are very much over-lapping. It is costing the farmers of this country too much to produce the article, and I think by co-operation, we can eliminate a great deal of the cost of production. I know of factories in the Province of Ontario that this summer placed a first class article of cheese on the market at a cost of 2c. per pound for manufacturing, including milk drawing and everything else. I know of factories in the same neighborhood where the cost is 3½ and 4c. The reason for that is that we have three and four cheese factories in places where one could do all the work efficiently and well. It is just as easy to superintend the manufacture of 300 tons of cheese in a season as it is to superintend the manufacture of 80 tons. Then a great saving would be made in the purchase of supplies. If we could make the same standard of cheese all over the country we would get a better price for our cheese. We found at Winnipeg that the Grain Growers have been able to get a better price for their grain, and not only that but they have been able to buy their supplies at a much lower rate. At Regina we found from the Saskatchewan Creamery that they have been able to make great advancement through their co-operative system of grading cream and butter. We have been asked, "Where are you going to get the men to run this business?" All this business out in the West is either run by men from Ontario and farther east or the sons of men who came from the East.

We are now at the period of reconstruction, and these are matters that we should think about. Dairy products are the best things to stand by, at the present time. They are the scarcest thing in the British market and the markets of the world to-day, and I know that the safest proposition for the farmer to-day is dairying. I think there is something in this proposition, but it may take a long time to work it out. It is a big scheme and will require good heads to work it out, but I do not think it is impossible of a solution.

A STUDY OF THE CHANGING CONDITIONS AND METHODS IN THE MANUFACTURE OF CREAMERY BUTTER.

L. A. ZUFELT, EASTERN DAIRY SCHOOL, KINGSTON, ONT.

The process of buttermaking at the present time seems to be undergoing a series of evolutions, and many of us are beginning to wonder just where we are at and if we have got to go back to school and learn the science of buttermaking all over again. There have been some rather startling announcements made of late in regard to new methods advocated for the improvement of creamery butter, and whilst I am in favor of taking advantage of every aid which science may evolve for the improvement of the finished article, at the same time we must not overlook the fact that the quality of the raw material has a predominating effect on the quality of the finished article over and above any mere deviation in method of manufacture.

The one big weakness which affects dairymen in general is this tendency of applying local or surface remedies for evils deep seated and of constitutional character. From time immemorial we have been taught that in order to have a fine quality of butter, we must first produce a fine quality of milk and cream, feed the cows on good, wholesome foods and use every precaution to guard against the flavor being injured from any cause whatever. The development of lactic acid in the cream by the buttermaker was considered of paramount importance in order to produce that distinctive butter aroma so characteristic of fine, well made butter. The market to-day apparently demands a mild, almost tasteless, butter and we are getting away from that distinctive aroma always associated with good butter in the past. I have frequently wondered if we are always safe in being guided by the opinions of the trade. Do these people fairly reflect the desires of the consuming public, or do they not rather reflect the opinions of the dealers as to the qualities which are less risky and show the smallest percentage of losses. There may be a vast difference between the qualities which the consumers may want and those which the dealers find profitable in handling. It should be our business as educators to co-ordinate these two requirements.

When the buttermaker separated the cream from the milk himself at the creamery he could by pasteurization and the use of a pure culture of lactic acid organisms produce a butter which not only had that desirable distinctive aroma, but had good keeping qualities as well, which made it a safe commodity for the dealer to handle. As the whole milk creamery is practically extinct and as the buttermaker is being furnished with a constantly changing quality of raw material, the whole process of buttermaking is being gradually changed to meet in the first place, the demands of the dealers for a safe commodity to handle and which will be reasonably satisfactory to the public. Our effort to do this has resulted in the produc-

tion of a butter of entirely different characteristics to those required a few years ago. We are now making a butter which may be more easily imitated by the "Oleo" manufacturers and for that reason is to be regretted. It is the tendency of human nature to travel along the lines of least resistance and we as buttermakers, have found it more convenient to cover up the defects in our butter by changing our methods of manufacture rather than attack the real cause of these defects by demanding a better quality of cream and by being prepared to pay a premium for this cream when it is offered.

We are getting more and more in line with the manufacturers of shoddy cloth, trying to give the consuming public, appearance for substance. We can no more produce a high quality of butter from inferior cream than we can, sound cloth from shoddy material. In anything I am about to say regarding improved methods in manufacture, I do not wish you to lose sight of this fact, that no process of manufacture can entirely overcome defects in the raw material and that improvement in methods of manufacture should go hand in hand with improvements in the quality of the raw material.

From the limited amount of work which we have been able to do at the Eastern Dairy School this fall, we feel we are safe in issuing the following instructions which we ask our makers to follow with discretion.

Pasteurization is the one great aid to be used to give butter its keeping qualities. If the cream has a high acidity, first warm up to between 70 and 80° F. and then add sufficient neutralizer to reduce the acid to form .28 to .35 per cent. Then pasteurize to a temperature of 170° F. for 5 to 10 minutes and cool to churning temperature. The longer the period between pasteurization and churning, the better the results, especially in the texture and grain. At least three hours should elapse before churning. Wash the butter with pure water in which germ life has been rendered inactive at a temperature 2 to 5 degrees lower than churning.

In order to have control of the moisture content, pass the butter through the rollers a few times and allow all free moisture to escape. Then make a test for moisture, and salt by the trench system adding at the same time the water necessary to bring the moisture content up to the point desired. Work the butter from 15 to 25 minutes to ensure a perfectly uniform color, thorough dissolution of the salt and a perfect incorporation of moisture with a bright, smooth, waxy texture. It is absolutely necessary for every creamery to be supplied with acid tests and moisture tests and in addition a fat test of each vat must be made each day if we wish to do our work intelligently and produce a uniform quality of butter. To simply say you have not the time, cannot be accepted. You must make up your mind that you have got to take the time to perform these tests or else get out of the business and I may tell you right now that the buttermakers who think anything is good enough and that performing these necessary tests is too much trouble, had better quit while the quitting is good.

We have not been able to determine the value, or otherwise, of a pure culture and hope to do some work along this line next season. In the meantime I have no hesitation in recommending the installation of pasteurizers and following the instructions already outlined. If we do, I am hopeful we will be heard from more favorably next year at our annual expositions than we have the past few years.

Before closing, I wish to express my appreciation of the good work being done by the Dairy Department at Ottawa, and the opportunities afforded by them for an interchange of Provincial ideas with a view of nationalizing the Dairying industry so that the word "Canadian" will apply equally to all parts of the Dominion.

REPORT OF THE DAIRY PRODUCE COMMISSION.

J. BURGESS, CHIEF INSPECTOR, OTTAWA.

In compiling the figures and percentages of the cheese and butter exported, by the Dairy Produce Commission during 1918, some information is made available which, I think, should be very interesting to the dairymen of Canada, especially so when the results are compared with the figures and percentages of 1917.

The same staff of Inspectors were employed and the grading was conducted along the same lines as last year. No. 1 cheese included all cheese of good commercial value; no objectionable flavors and fairly sound in the general quality.

Grade No. 2 consisted of cheese with a fair percentage of the samples off flavor, fruity or not clean flavors, acidy, too much moisture, open, loose and gassy, cracked ends, soft rinds, bad finish or too high for the boxes. One or more of these defects would be sufficient to place the cheese in No. 2 grade.

No. 3 grade consisted of cheese which were badly off flavor, very fruity or rancid, very acidy, or any other defect which was considered too pronounced for No. 2 grade.

Culls consisted of short grained, sour cheese, very moist with bad flavor, very porous or floaters. Cheese from which some of the fat had been removed and also cheese which were badly frozen. A large percentage of the cull cheese were crumbly or lumpy and would not draw on the iron.

I think it is understood that in grading large quantities of cheese, the work must be conducted, as far as possible, on a commercial basis and, while we only examined about 5 to 10 per cent. of the shipments, excepting in special cases, I think the grading was fairly uniform and accurate in the different warehouses.

TABLE I.—CHEESE HANDLED BY THE DAIRY PRODUCE COMMISSION FROM MAY 1ST TO DECEMBER 26TH, 1918.

Province	Total Boxes	No. 1	No. 2	No. 3 & Culls
		%	%	%
Ontario.....	1,044,311	94.84	5.	.16
Quebec.....	716,448	78.50	20.17	1.32
P. E. Island.....	14,811	90.67	9.32	.....
Manitoba.....	2,223	85.56	10.61	3.82
Totals and Average Percentages.....	1,777,793	88.21	11.16	.63

1917—Total boxes, 1,882,670. Value, \$34,275,497.00
1918— “ “ 1,777,793. “ \$34,626,853.95

Decrease in boxes, 1918—104,877
Increase in value, 1918—\$351,356.95

The total boxes given for 1917, cover the period from the appointment of the Commission in June, 1917, to April 30th, 1918. The decrease in production, allowing for 2,000 to 3,000 boxes which have partly come in since these figures were collected, will be about 102,500 boxes. This does not take into account the exports in 1917, before the Commission got under way.

The shortage is approximately 60,000 boxes for Ontario, 40,000 boxes for Quebec, and 2,600 boxes for Prince Edward Island, while Manitoba receipts were increased by 1,500 boxes.

The shortage from Prince Edward Island is partly due to the fact that the cheese are all colored, and the greater part of the Fall make was sold or held for the Canadian markets.

One point which I would like to emphasize in Table 1, is the splendid improvement which has been made by the Province of Quebec. In 1917, the percentage of No. 1 cheese was 70.88, and in 1918, 78.50 per cent., an increase of 7.62 per cent. in No. 1 cheese. Several districts in Quebec have been making a lot of soft, moist cheese and the improvement in the quality is largely due to these districts making firmer and drier cheese.

Mr. Bourbeau, the Chief Inspector for the Province of Quebec, has written me that the grading at Montreal has been of great assistance to him, and has been one of the main factors in securing an improvement in the quality.

In subdividing the Ontario cheese to districts, the same division was made as last year.

Western Ontario includes all the territory west of Toronto.

Central Ontario is that part of the Province east of Toronto as far as Lennox and Addington Counties.

Eastern Ontario starts with Frontenac and Renfrew Counties and extends to the boundary line of Quebec.

Northern Ontario includes North Bay, Sudbury, Nipissing and Algoma Sections.

TABLE II.—QUANTITIES AND STANDING FOR THE DIFFERENT DISTRICTS IN 1917 AND 1918.

District	Year	Boxes	No. 1	No. 2	No. 3 & Culls
			%	%	%
Western Ontario	1917	61,538	95.44	4.31	.25
“ “	1918	81,190	97.54	2.45	.01
Increase in No. 1			2.10		
Central Ontario	1917	264,165	98.07	1.91	.02
“ “	1918	257,283	98.28	1.66	.06
Increase in No. 1 .....			.21		
Eastern Ontario	1917	758,403	91.80	7.96	.24
“ “	1918	699,507	93.73	6.12	.15
Increase in No. 1			1.93		
Northern Ontario	1917	3,253	43.81	50.84	5.35
“ “	1918	6,331	42.50	50.50	7.00
Decrease in No. 1			1.31		

In Table II the figures for 1917 were compiled to the end of December, and do not include about 21,000 boxes of cheese which came in between January and the end of April.

In connection with the receipts from Western Ontario, I understand that the Commission has only handled about 30 per cent. of the cheese which are produced in this district. For this reason the quantities are likely to vary from year to year.

The 1918 cheese were all received by the latter part of August, and this, no doubt, lowers the percentage of No 1 cheese, as the Fall quality is always better than the quality in the fore part of the season.

Soft rinds was one of the main defects in Western Ontario cheese in 1917.

but was completely eliminated in 1918. The defective cheese was due to off flavors and gas.

In Central Ontario, the percentage of off grade cheese is so small that there was not as much room for improvement. The defects here were some acidy cheese, some fruity and off flavors, and a few lots of weak or open cheese.

It was a common thing to find a great many cheese in some of the districts in Ontario, also in the Province of Quebec, which were just on a line between No. 1 and No. 2 grade, but in this district there were very few liners, and the quality of the cheese was usually very fine.

In Eastern Ontario, considerable improvement was made in certain sections, by making a firmer and drier cheese. Other sections improved slightly in the flavor, and there was also a decided improvement in making cheese to fit the boxes with the result that the cheese landed in Montreal in better condition.

There are still a great many acidy cheese made during the hot weather, and this, along with too much moisture, is probably the most serious defect. Other defects were, not clean flavors, some off flavors, gassy and open cheese and a regular supply every week of green cheese.

Eastern Ontario is a very large district, and I must tell you frankly that there are several sections which are making cheese quite equal in the quality to those made in Central and Western Ontario.

In Northern Ontario there is a decided increase in the quantity of cheese this year which, no doubt, is partly due to an increased production, but may also be due to some of the cheese being credited to the Province of Quebec last year, as part of them are sold by Quebec salesmen.

The quality of the cheese in this district is very poor and there is a big opportunity to raise the standard to the level of other districts. The amount of money lost on No. 2, 3 and cull cheese in Northern Ontario is close to \$2,000 and this seems large enough to justify a special effort being made to improve the quality.

In a general way, I may say that the average increase in the percentage of No. 1 cheese in 1918 over 1917 is 4 per cent. That is, the returns to the Canadian dairymen were increased by \$34,994.21 by the improved quality.

BUTTER.

Referring briefly to the exports of creamery butter during the season:

Table III gives the quantities and percentages by provinces, of all the butter received under the commandeering order from September 30th to November 9th.

TABLE III.—COMMANDEERED BUTTER, SEPT. 30 TO NOV. 9, 1918

Province	Packages	Grades			Excess Moisture
		No. 1	No. 2	No. 3	
		%	%	%	%
Ontario.....	45,125	70.73	27.48	1.04	.75
Quebec.....	39,937	94.48	5.05	.12	.35
Alberta.....	13,435	90.26	8.63	.09	1.02
Saskatchewan	7,036	71.66	12.58	.14	15.62
Manitoba	10,021	81.10	14.89	.05	3.94
Total Packages.....	115,554				
Average Percentages ...	.....	82.17	15.54	.47	1.82

Total quantity, 6,449,037 lbs.

Value, \$3,024,097.75.

The percentage in the column headed "Excess Moisture" represents butter which contained over the legal amount of 16 per cent. moisture. This butter was lowered to No. 2 grade and a sufficient reduction made in the price to cover the excess: That is, if the moisture content was 18 per cent. the owner was paid for 98 pounds on the 100, at the rate of No. 2 price. Then the export invoices were marked "Butter containing excess moisture." I think it is generally recognized among creamerymen that the proper incorporation of moisture is a very important factor in the science of buttermaking. However, there is a possibility of overdoing this matter, and I think these figures show that every churning should be tested for moisture before the butter is shipped out.

In grading the butter, we aimed to be as lenient as possible, owing to the exceptional conditions under which it was shipped. If the flavor was sound, the other defects would have to be very pronounced before the grade was lowered.

In Ontario butter, we found the main defects were objectionable flavors, such as oily and old cream flavor. This was more pronounced in the butter from the smaller creameries and is a very bad defect.

The Quebec defects included some not clean flavors and excessive free moisture in the unpasteurized butter. There was also some very high salted butter from both Ontario and Quebec.

The objections to the butter from the Western Provinces were, weedy and not clean flavors, along with short grained butter.

The most striking feature in regard to the western butter, is the uniformity in the general character, and the very small percentage of objectionable flavors which frequently go with butter made on the cream gathered system.

The short grained butter is a defect which the eastern merchants do not like, and it is up to the western men to eliminate this defect if they are going to cater to the eastern markets.

Owing to the abnormal conditions, there were a variety of packages received, including 30, 50 and 70 pound tubs, 45, 50 and 70 pound boxes of prints, in addition to the standard boxes containing 56 pounds. Unfortunately a few of the creamerymen in Ontario were not able or did not secure new boxes, with the result that these packages were very dirty and in bad condition.

The percentage of packages supplied by the different provinces:

Ontario	39.05	per cent.
Quebec	34.56	" "
Alberta	11.63	" "
Saskatchewan	6.09	" "
Manitoba	8.67	" "

In conclusion, let me say, the Commission handled 44,272 boxes of butter before September 30th, which was largely No. 1 grade. 6,957 boxes of this quantity was commandeered from the Dominion Fish and Fruit Company of Quebec City who were carrying more butter than the regulations of the Food Board allowed them.

The total quantity of butter exported in 1918 is 159,826 packages, weight, 8,914,501 pounds, and the value \$4,104,278.46.

ADDRESS.

MR. E. H. STONEHOUSE, PRESIDENT, ONTARIO MILK AND CREAM PRODUCERS' ASSOCIATION, WESTON.

I am pleased to be at your convention this afternoon. Possibly I am the first representative of a Producers' Organization to appear before this august body, or any body composed of manufacturers to a large extent, in this Province of Ontario. This would not have been possible a few years ago.

The attitude of the producer in the days gone by has been perhaps antagonistic. We have gone around with a chip on our shoulder, and our attitude has been practically:

**" We do not want to fight, but by Jingo if we do,
We've got the men, we've got the milk, and we've got the money, too."**

I am thankful to say that attitude has changed very materially, and we are more and more, beginning to realize that the great industry of which we form separate entities is one great industry, and our interests are very largely common. In the beginning the producer was not organized, but the pressure of circumstances was such that we found it was necessary to organize, and from a small beginning of a local organization, we have at the present time, the Toronto Milk and Cream Producers' Association of which at one time, the present Minister of Agriculture for the Province of Ontario, and who is present with us this afternoon, was the president.

From this organization, which began thirty years ago, in the City of Toronto, a very great number of organizations—about 35 all told—have sprung. The local organizations dealt with problems in their own particular centres without very much reference to what was going on in other places in the Province, but the day came when we found, in order to be efficient and in order to do the work for which the organization came into being, it was necessary that we should broaden our viewpoint and conduct our operations along entirely different lines, and from the consultation which resulted as a consequence of this state of affairs, we have to-day in this Province of Ontario an organization which is known as the Ontario Milk and Cream Producers' Association, which has grown by leaps and bounds until to-day it is a factor which has to be recognized as one of the branches of this great industry, of which we all form a part. This organization has broadened in its viewpoint and has recognized that it is necessary to have an organization which shall extend the length and breadth of this Dominion, guaranteeing this great industry, and making it a solid whole for the advancement of the industry.

It is only as we compute in facts and figures that we see the importance of this industry and the proportions to which it has grown. When we begin to consider the figures as we have them presented to us, we are almost lost. In the pre-war days, if we had such figures presented to us of the total of the dairy industry in this Dominion, which is approximately \$200,000,000, it would have staggered our imagination. It is only since the beginning of the war that we have become accustomed to thinking of billions instead of millions, and yet this industry, which to-day is of great proportions, is capable of extension into gigantic dimensions.

As I go to and fro in this Province and in the other Provinces of the Dominion, and realize the outlook for this industry, my mind is lost in wonder as to what will eventuate, but the development of the industry depends on the men who are behind the industry, and who are to-day working wisely and well in leading us out into wider and better conditions.

We have Provincial organizations in the various Provinces. It was thought that something more was required, something greater and broader; something to deal with problems that the various Provincial organizations were not able to deal with adequately, and it was wonderful the spontaneity of this thought. It did not seem to spring from any particular organization, but it seemed to spring full grown into being, and a few weeks ago in the City of Ottawa, a conference was called to consider the various phases of the work and to confer together as to what might be done to build up our industry and safeguard its future. Out of that conference there has grown or evolved what at the present time is known as The National Dairy Council of Canada. I feel this afternoon, as first President of that organization, in coming before you, the best thing I can do would be to bring to your notice some facts in regard to this National Dairy Council.

It was thought when the various representatives met at that council, it would be a difficult thing for any organization to spring therefrom. In the beginning the difficulties seemed to be so great, the differences of opinion seemed to be so wide, the obstacles were so tremendous, that it was thought that in the dim and distant future something might be done, but this is a day of swift development, and it was found possible, after the conference had progressed a certain length of time, to get together and decide on some basis for action. Out of that consultation there was evolved this organization of which I have the honor to be the head.

It was felt that every Province in the Dominion should be adequately represented. It was felt that every branch of the dairy industry should be adequately represented, and when that was recognized it was an easy matter to get down to some basis in regard to organization work.

The men who were called to the conference had no power to bind anybody, and it was possible to form nothing but a provisional organization, and of course the officials of the organization and the members of the organization were, for the most part, the men who were delegates to the conference.

For particulars as to composition of Council, see page 7.

The first phase of the situation that presented itself to our mind was the fact that this industry of ours was to be a great industry, and in order that it might be a great industry one of the chief factors must be the excellence of the product. This Dominion of Canada is very largely a dairy country, and will depend in the future for its prosperity on the dairying industry to a greater extent than any other industry. Therefore, the first question was the standardization of products. We must have the very best product possible to be manufactured, and to this end, we thought we should have certain definite standards; subject to revision by the National Dairy Council. To this end, every branch of the dairy industry should contribute—the producers in the first place. In order to have an excellent dairy product, it is necessary that the article from which it is manufactured must be pure and clean and of the very highest standard of excellence, and that is one of the first objects of our great organization—the educating of the producer, or to assist in bringing him to a realization of the necessity of a high standard for the article he produces.

As I go to and fro in the Province of Ontario, I find this idea is taking root and the men upon the farms are lending themselves more and more to this idea, and I think you will bear me out when I say that the standard of the product as it comes from the farms has increased very, very materially during the last few years. Still, there is room for improvement, and if we stand together in this matter, it will not be very long before we reach a very much higher standard.

One of the great objects of our Association is to act in an advisory capacity to the Government; in fact, it will be the mouthpiece of the great dairy industry of this Dominion, to whom the Government of this Dominion will come for advice and for information before deciding upon any measure which will affect the dairy industry of the Dominion. That phase of the question was a difficult one when we were considering the organization. We have been apt to lean too much upon the Government in the past, both as regards Dominion and Provincial affairs. The feeling among certain members was that we could not finance the Association without the Government standing behind us and assisting us in various ways, but that was not the consensus of opinion when we faced the matter squarely. We have such tremendous territory to draw from, and so many resources at our disposal that the financing of the Association will be a very simple matter indeed.

I believe that the different organizations will be willing to contribute, and I have no hesitation in saying that as far as the producers are concerned, they are willing and ready to do their share.

Then the next question that was considered was the protection of our industry, and our Association had not gotten upon its feet, when questions began to crop up which we felt should have our careful scrutiny and which perhaps might require action upon our part. I have reference to the express rates, which are to-day before the Dominion Railway Board, and we have taken this matter in hand and have arranged so that the interest of dairying will be represented and carefully safeguarded when they come up for consideration before that august body.

We may have other questions that will call for our attention. There is the question of oleomargarine which will be a very vital question in a short time and one that will require not only action, but before we take action it will require careful consideration. We should make our position plain with regard to oleomargarine. We take the position that this great dairy country, a country which is able to produce unlimited quantities of the very best food products along dairy lines, at a price which is within the reach of every portion of our community, without exception, should not allow oleomargarine to be imported or manufactured. One of the arguments advanced when the proposal came up to admit oleomargarine into the country was that there were a great number of our citizens not able to get fats on account of the exorbitant prices which were being charged for these products. We find that even though the demand is so great, yet every person has been able to purchase dairy products. I do not think there is any necessity in this country for oleomargarine, because we can produce the pure animal fat at such a reasonable price that it is within the reach of all our people. Private interests will try to fasten upon this country this product of oleomargarine without any reference to the necessity for the product, and we, as representatives of the dairy industry of this Dominion, must have at our disposal data, and must have the whole question so carefully prepared and so carefully presented to the people of this great Dominion of Canada that when this matter comes up on

the floor of the House, it will receive careful consideration, and be decided in the best interest of the country.

The great industry that we are all so much interested in will require co-operation on the part of every branch if we are to achieve the objects that we have set out to attain. We have got to act in the interest of the whole, and if we see any particular branch of the industry trying to obtain advantages which are not its due, it would be our province, as the National Dairy Council, to see that all interests are protected. We must not expect to do everything in a day or a month, or in a year. It is going to be a slow process to work out the various difficulties that will come up from time to time. The National Dairy Council will have to be given wise leadership and careful direction, and in a very short space of time it will be an institution of great value to the dairy interests of this country.

MR. G. A. PUTNAM, Director of Dairying for the Province, drew attention to the fact that Ontario produced over one half of the cheese and butter manufactured in the factories and creameries of the Dominion. These products, together with the butter made on the farms, milk and cream supplied for city and town consumption, condensed milk, milk powder, ice cream, etc., totalled approximately \$71,180,000 for 1918, a very handsome proportion of the agricultural output of Ontario.

Reference was made to the fact that while the dairy farmers have been getting little above the cost of production for their output for many years, it is in the dairy sections that we find the most uniformly prosperous and contented agriculturist. The dairyman has the advantage of a continuous income, and even in poor years gets a fair return, and can always "carry on." It is a most dependable line of agriculture, taking it year in and year out.

Mr. Putnam spoke at some length upon the organization and work of the National Dairy Council. Information regarding this feature will be found elsewhere in this report. Mr. Putnam also expressed appreciation of the harmonious co-operation of the Dairymen's Association with the Department of Agriculture for the Province.

"Your assistance in the work of the instructors sent out by the Department adds to the effectiveness of their efforts."

SECRETARY'S REPORT.

T. A. THOMPSON, ALMONTE.

As Secretary of this Association, it affords me very much pleasure to present my report for the year 1918.

The weather conditions for the past season were not very conducive to the production of milk, and there was considerable shrinkage in the amount of dairy products manufactured, and although prices were slightly higher than a year ago, yet they did not balance with the shortage of production and the increased cost of labor over the season 1917. Notwithstanding these drawbacks, the dairy-men of Eastern Ontario have closed the year with a comfortable balance on the right side of the ledger.

This Association has strenuously endeavored to stimulate the production and

care of dairy products in Eastern Ontario, and it is gratifying to know that each year sees a steady improvement along all lines of the business.

The cheese exhibit in connection with this convention is the largest of its kind ever held in Canada, and the quality of the goods reflects great credit upon the makers and their efficient staff of instructors.

Great credit is also due Mr. G. G. Publow, Chief Dairy Instructor for Eastern Ontario, whose untiring efforts and loyal devotion to duty is reflected in the ever increasing quality of the dairy products of Eastern Ontario.

The district meetings held throughout Eastern Ontario during the past two months have been, on the whole, well attended, and have been the means of disseminating much useful information among the patrons of cheese and butter factories and creameries.

It is a source of considerable annoyance to the Association, that notwithstanding their earnest efforts, the pernicious practice of tampering with milk does not seem to be on the decline, as is indicated by the convictions during the past season, and some more drastic measures will have to be introduced in order to stamp the base habit out and relieve our industry of this great reflection.

The Directors appreciate very much the assistance the Association has received from the Ontario Department of Agriculture and also from the Department of Agriculture of the Dominion.

Personally, I wish to tender my sincere thanks to the President and the Board of Directors for the assistance they have rendered me in the discharge of my duties and for their courtesy and forbearance at all times.

REPORT OF RESOLUTIONS COMMITTEE.

1. That we desire to express our appreciation of the hearty reception given the members and delegates by the citizens of Belleville. We wish to thank the Mayor and Council for their kindness in placing the use of the City Hall for the Convention and Dairy Exhibit.

2. We desire to express our appreciation of the addresses given by the various speakers, which have contributed to the success and educational value of the convention, and we extend to them our sincere thanks for their assistance.

3. We wish to thank the Canadian Salt Company of Windsor, through their representative, Mr. E. G. Henderson, for the artistic badges presented to the members of this Association.

4. We desire to thank the press for the excellent reports published by them, of this convention, and express our appreciation of their help.

5. We wish to express our thanks to the donors of the following special prices:

Canadian Salt Co., Windsor; Heller & Merz Co., New York; The Instructors and Cheese Makers of Eastern Ontario; Verrett, Stewart & Co., Salt Sellers, Montreal; The Western Salt Co., Courtright, Ont.; Wm. C. Coe, Esq., Toronto; The De Laval Dairy Supply Co., The J. B. Ford Co., Wyandotte, Mich.; C. Richardson & Co., St. Mary's, Ont.; Parke, Davis & Co., Walkerville, Ont.; and The Viking Rennet Company, Hoboken, N.Y.

6. We wish to express our thanks for the assistance of the Federal and Provincial Departments of Agriculture, to our Association, and now that the war

is successfully over and peace practically proclaimed, we press for the fulfilment of the promise that the importation and manufacture of oleomargarine be discontinued in Canada.

7. That we, the members of the Eastern Ontario Dairymen's Association, having heard the report of the special Cheese Committee, representing the two Ontario Dairymen's Associations and the United Farmers of Ontario, recommending the establishment in Ontario of a farmers' co-operative dairy company on lines similar to those on which the Saskatchewan Co-operative Elevator Company, Limited and the Saskatchewan Co-operative Creameries, Limited, are operated, and having heard the report of the special delegation of Ontario Dairy Farmers that has recently visited Saskatchewan to investigate this matter and report back their findings for the benefit of the dairy farmers of Ontario, are strongly in favor of steps being taken to further investigate this matter with the object of launching such a company or companies in Ontario should such action be deemed practical and desirable, it being our opinion that such a company, properly managed, should be a great benefit to the dairy industry in the following, among other ways:

(1) It would lead the patrons of our factories to take a greater interest in the industry by extending the principle of co-operation in its management, a policy which our Governments and this Association have long advocated.

(2) It would promote an increased production of dairy products by making the industry more profitable to the producers through reducing the costs of operation and improving the product by effecting a greater uniformity in make, as well as by making it easier to develop the home and foreign markets through having greater unity of management.

(3) It would reduce the costs of selling our dairy products by making it possible for our dairy farmers to ship their dairy products direct to Montreal where it could be weighed, graded and sold under closer supervision by their representatives than is now possible, thereby tending to remove some causes of dissention between the producers and buyers, which have led to much dissatisfaction in the past.

We would, also, urge the continuation of the work of the Cheese Committee and the Association's active connection with it, and would recommend our Association to make a grant of funds to the committee to make it possible for capable speakers to be sent out to address meetings of dairy farmers in reference to this matter.

Finally, we would express our approval of application being made to the Ontario Government, should the committee deem such action desirable, for legislation incorporating such a company along the lines that have proved so successful in the case of the two farmers' companies in Saskatchewan, of which mention has been made.

MR. WILSON: I cannot allow that last resolution to pass, as it has gone so far as to recommend that action be taken immediately and that the Government be asked to take some part in the formation of such an Association. I do not see that it is going to accomplish very much. From what I have heard here, I am not convinced that it will help the dairy business in any way. I am a firm believer in farmers co-operating. I have always been a strong advocate of farmers owning their own factories, but there is a limit to that. I believe they can do it better than any Association can do it. The Western Grain Growers' Association has been a success, but I do not think such an association as is proposed here would have the same success,

because we are situated differently from the Grain Growers in the West. The organization of the grain growers was necessitated by the action of the elevator companies; the farmers had many grievances against the elevator companies that they wanted to have rectified. Have we any grievances that we want rectified to any extent? I am a farmer and have been on a farm all my life, and I have been a cheese manufacturer for fourteen years, and a salesman for twenty-eight years. Having had that experience, I think I know something about the business, and I contend that the farmers producing milk for cheese factories have not any such grievances as the grain growers of the West. Such men as the Hon. Mr. Crerar, who is at the head of the grain growers, were bound to improve conditions. He has done a noble work. The grain growers in the West were wonderfully successful because the elevator men had not been treating the farmers properly, and there were many things that they had to rectify. The same state of affairs does not exist in connection with our business in the Province of Ontario, and I think it would be well to leave the matter over for further consideration.

The adoption of the resolution was moved by Mr. Glendinning, seconded by Mr. Smyth.

MR. DARGAVEL: I object to part of that report entirely. I do not think it is right to railroad a resolution of that kind or attempt to do so at this convention. We have every opportunity now of taking charge of our product, and to compare our conditions with those of the grain growers of the West is absurd. We now have every privilege of managing our own business, largely on the same plans that the grain growers launched theirs. The farmer sends his milk to the cheese factory, and all the manufacturer does is to make cheese at so much per pound. The farmer appoints his own salesman, usually one of themselves, and the cheese are sold to the best advantage at auction on the cheese board. The farmers are well treated in every way, and there is no occasion whatever for making any change. I do not believe that the farmers of this country want to commit their product into the hands of some company that they will not have control of themselves. We would not know whether our milk and its products would not go into the hands of somebody who would make ducks and drakes of it or not. At the present time we know where it goes, and we know where the money comes from, and we get our money every week or month. We would not know, if the business were put in the hands of a company such as is proposed, when we would get our money. I believe the hard-headed farmers of this country are perfectly competent to manage their own affairs, and I do not want to trust my milk in the hands of any big company that might perhaps make a big failure. We do not want to do anything of that kind, and I seriously object to the railroading of this motion through, because I am sure it does not express the sentiment or wishes of the farmers and dairymen of this country.

I give great credit to Mr. Cowan who is the originator of this, for the work that he may have done in the dairy interests. I think he is perfectly honest in this. For my part I want the milk to be controlled by each factory. I quite agree with the proposition made by Prof. Ruddick of the Department of Agriculture, Ottawa, to-day. I think that something could be done in that way, but to have a great big company to manage the affairs of the dairymen of this country would be impossible and I totally object to it, and I wish to register my objection in a very forcible way here to-day.

MR. GLENDINNING: As chairman of the Resolutions Committee, I must say a few words. It is true, as Mr. Dargavel says, that Mr. Cowan started this move-

ment, but I think both Mr. Wilson and Mr. Dargavel have missed part of that report. They are under the impression that we are trying to railroad it through. We are doing nothing of the kind. That report is put before you in order that it may be discussed, and for no other purpose.

MR. DARGAVEL: If that resolution is carried to-day, what would be the effect?

MR. GLENDINNING: Mr. Cowan wrote that resolution, and we amended it and perhaps a few more words should have been struck out. Mr. Wilson says that he is a salesman of a large number of factories, and he is doing the very thing that we are advocating by that resolution. The resolution does not say one big company; it says a company or companies, and that is merely extending what Mr. Wilson is doing, a little farther. The County of Prince Edward may very easily adopt this suggestion in sending their cheese to Montreal, and the County of Hastings might do the same thing. The resolution is there for you to do with as you please. There is nothing compulsory about it. (Applause.)

DR. C. A. PUBLOW: Mr. Glendinning mentioned Prince Edward County, and I would like to say that two years ago, while I was more actively connected with the dairy industry, there was on foot a movement something along this line to form a co-operation company made up of all the cheese factories in Prince Edward County, and the management of these factories to be put under one man. We figured that a great deal of money would be saved to the farmers of the county in the drawing of milk and in the buying of supplies and in the hiring of makers and in many other ways. I personally visited all the factories in the county where meetings were held of all the patrons, and while some of us felt that no doubt a very good organization could have been established, eliminating salesmen, yet the people of that county were quite unanimous in not caring to disturb the conditions under which they were working. They were quite satisfied with the conditions which they had.

I do not believe we are in a position to say whether or not this is a good thing. Personally I would be in favor of having a committee appointed by the Association to investigate the matter. There is no particular hurry about it, and it could be reported on at another convention. There is one matter that certainly deserves the attention of the Association, and that is the question of cheesemakers. In Prince Edward County, during last summer, I do not know of any factory that had a man learning the business with the idea of going into it. We learn from your report that it is practically impossible to get a good cheesemaker, and something must be done to encourage young men to start in the business. As far as Prince Edward County is concerned, the people would not be in favor of expressing themselves too decidedly along the line of having one large concern to handle all their cheese.

MR. WILSON: Mr Glendinning says I am opposing something that I am doing myself. I was a salesman for a combination of factories, but I had nothing to do with the management of the factories except the one I own myself. These people do not want one large company to do their business. They wish to do their own business themselves. I contend that the cost of management of the factories would be greatly increased by a central organization. The President of our factory gets \$15 a year, and the secretary \$40 and the salesman \$30. Personally I would be better off if I never sold any cheese. The officials of the central organization would have to be paid high salaries and the management of the factories would be largely in their hands. The annual meetings would be held 100 or 200 miles away from some of the factories, and the farmers would not pay the expense of sending a delegate to that meeting. The companies in different localities vary very much. In

one district there are two factories not 20 miles apart, and in one place they can manufacture cheese much cheaper than the other. There are a great many other things that will have to be considered. The men living in the immediate neighborhood know how to conduct their business better than the man who lives 100 miles away.

MR. HUME: This is a large question and too big to rush into in a hurry. I am in favor of the principle, but we are not prepared to go on with it at this time, and I would suggest that this report be received, and that a committee be appointed to consider the matter and further investigate it and report on it at the next annual convention.

MR. SMYTH: It was understood that certain districts in Ontario wanted to try this matter out. There is nothing in that resolution that is going to put all the cheese factories into one company. We do not propose to take any factory or any number of factories and combine them into one. We have a report from Saskatchewan and from different parts of Ontario, and we find that the farmers of Ontario are capable of managing their own business. This resolution was put in with the idea of having it thoroughly discussed. I think the resolution is a very opportune one, and I am going to move all the other resolutions be adopted except the last one.

MR. DARGAVEL: We quite understand that the motion was not for the purpose of taking the cheese factories out of our hands, but if that motion was passed we would be endorsing the principle, and that is what I object to. I very much doubt if this meeting wants to endorse that principle. That resolution suggests that we spend our money to propagate that doctrine, and I object to any of my money being taken for that purpose. The money belongs to the members of this Association and I object to it being expended in that way, and I object to that principle being endorsed by this meeting. If that motion is passed it will go to the Minister of Agriculture, and naturally he would pay considerable attention to a resolution passed by a meeting of this kind. I hope the last resolution will be entirely withdrawn.

MR. GLENDINNING: Mr. Smyth moves that the former part of the report be adopted with the exception of the last clause. I think we have accomplished what is intended, and that was to have this matter discussed. It seems to be the general trend that it is received unfavorably. Therefore, I think it is quite in order to adopt the first part of this report.

Moved by MR. SMYTH, seconded by MR. HUME, that the first six clauses of the report of the resolutions committee be adopted. Carried.

MR. STONE: The farmers of this country are beginning to realize that they are in some degree competent to handle their own affairs. Every other class of manufacturers in the Dominion are handling their own affairs. Why cannot the dairymen of this country, who manufacture an important article, control it to some extent on the market? I quite agree with Mr. Hume that this motion should not be entirely laid aside. It should be laid on the table for further consideration. I do not think the dairymen are ready for it at the present time. There is no doubt there is quite a bit of opposition to the resolution at this meeting, and I do not think the motion should be passed, but I think it should be further considered.

MR. HUME: I think Mr. Stone has got the right idea. The motion should not be passed at this time, but it should be laid on the table for further consideration.

MR. GLENDINNING: You had better name a committee to consider it, because no committee is mentioned in the resolution.

MR. HUME: I had reference to the committee who went to the West to investigate: Mr. Empey, Mr. Anderson, and Mr. Donaldson from the Western Association.

I think their report should be received as a report of progress, and they should be named to gather further information so that the next annual convention will be able to consider the matter more fully. I do not think we are prepared to dispose of this matter at the present time or to throw it out.

MR. WILSON: I do not wish to have the resolution thrown out entirely, and I am heartily in accord with the amendment to leave it on the table for further consideration.

MR. HUME: I move that resolution No. 7 be received and laid on the table, and that the committee, composed of Mr. Empey, Mr. Anderson, and Mr. Donaldson, be continued to gather further information during the coming year and report at the next annual meeting. Carried.

GEORGE A. PUTMAN: The convention has not as yet taken action with regard to the National Dairy Council. The Western Provinces have all taken this matter up, and they have a representative meeting from all their associations in Saskatoon to-day and to-morrow. The Eastern Provinces have assured us that they are ready to co-operate, Quebec objected at first, but they are now very enthusiastic in the matter. I do not know what the Western Ontario Association intends doing, but the other Provincial Organizations, the Creamery Men, the Milk and Cream Producers, the Ice Cream men and the Condenseries are all taking action and are going to do their share in financing. Your financial responsibility will not be very great. You should appoint two representatives, or leave it in the hands of the Executive to appoint your representatives.

MR. THOMPSON: I have much pleasure in moving that this matter be left with the Board of Directors to take up and appoint members to represent the Association. We have had considerable correspondence in connection with this matter, and the Board of Directors will be in a position to go thoroughly into the question before taking any action.

The motion was seconded by Mr. Wilson and carried.

Greetings and an invitation to Ontario dairymen to attend the Manitoba Dairy Show and Convention were received from Mr. A. McKay, President, Winnipeg.

AGRICULTURE, BANKING, AND TRANSPORTATION.

J. W. JOHNSON, M.L.A., BELLEVILLE.

(In the absence of Mr. Johnson because of illness, the following paper was read by COL. PONTON.)

Canadians are heirs to the greatest legacy, the richest patrimony on earth. I have chosen for my subject to-night "A Triple Alliance" that exists and exercises a powerful influence for promoting the welfare of the Canadian farmer and effects, as well, the prosperity of all the people: the entente is that which binds together Agriculture, Banking and Transportation.

AGRICULTURE.

There is nothing more homely or less promising in appearance than the soil; but the Almighty has made its possibilities boundless; dictate to it through thorough preparation and seed or plant, and it will yield the most beautiful flowers or the varieties of grains, grasses and roots needed for the support of man and beast.

The effect of the unwearied sun from day to day and the gentle rain from heaven co-operating with the labor of the intelligent and skilful farmer will be seen in the bountiful harvest that will be gathered and garnered bye and bye.

At one period, in the Bay of Quinte section, the farmers summoned only barley from the soil; that was the time when the farms were covered by mortgages; the farmers raised only *raw material* and thought that if that crop should fail, disaster would follow. What was at first regarded as a disaster did come; President McKinley caused a law to be passed which made the tariff on barley going into the States so high that it proved to be prohibitive to Canada.

It was then that the adaptability of the Canadian farmer to meet and overcome untoward misfortune was splendidly displayed; he had been only a producer of raw material for the malt houses of Oswego; co-ordinating brain and muscle, he quickly discovered that it was possible for him to manufacture goods from his raw material and secure double profit. Roots are now raised for the evaporators; tomatoes, corn, pumpkins, berries and peas for the canning factories, and wheat and oats and rye to meet home and foreign demand. But of all the varied products, I have yet to name the most profitable—the pig and the cow.

The Holstein is the favorite cow in Eastern Ontario. I call her the black and white factory; she is always black and white, is constantly manufacturing, and yields her product twice a day. No other factory is run so cheaply and few make such profits. She does her own stoking, and overhead charges are free as sun and air and rain. To the cow may be attributed, to a large extent, the marvellous change in the financial position of the Eastern Ontario farmers. She has changed their condition from that of borrowers to that of lenders.

BANKING.

The deposits of the farmers, in the banks, have made needed loans for the other great industries of the country easily accessible. Lend me your ears that you may hear, and fortify and charge your memories with these wonderful facts proving the progress made by Canada in less than a third of a century. I quote official figures.

In 1885, the deposits amounted to 50 millions of dollars; in September, 1918, they had risen to one billion eight hundred and forty-four million; the capital paid in by shareholders amounted to only 226 millions, so the money of the public on deposit is beyond the capital invested by shareholders to the extent of 1 billion 618 million; from poverty to affluence.

TRANSPORTATION.

The union that exists between Agriculture and Banking has been demonstrated; equally tangible and definite is the third component part of the alliance—Transportation. With the railways we are all more or less familiar, we have a greater railway service than any other eight millions of people in the world; with our highways we are in close intercourse; the rut which to the rubber tired buggy and wagon were of small account, have become tracks sunk in the roads by the furious, frantic drivers of automobiles. The Dominion and the Provinces are committed to the task of providing and maintaining a main thoroughfare from East to West; successful maintenance will depend upon the municipal authorities enforcing the law of the Province without fear or favor, a duty now ignored.

The waters of the Great Lakes, the unsalted seas, and their rivers and canals give Canadian products access to the markets of the world. This inland navigation, stretching from the Atlantic Ocean to Port Arthur, on Lake Superior, gives Canada a continuous navigable water way into the continent extending 2,217 miles. The Harbor of Montreal is the furthest inland port in the world. Situated one thousand miles from the sea, at the interchange point between ocean and lake navigation, it is the most complete and busiest harbor on the American continent. Its limits comprise 16 miles of water frontage on each shore of the St. Lawrence, every foot of which is owned by the public.

Among the latest developments in the harbor, is the great floating dry dock, capable of accommodating the largest ships of the British Navy and the great modern vessels of the merchant service.

Co-ordinating with the navigation facilities of the great lakes, the flowing waters of their magnificent rivers are providing electric power and light throughout Ontario and Quebec.

That land is yours, your title deeds were in jeopardy for four years, but now, through the dauntless and never ending bravery and tenacity of Canadian soldiers in conjunction with our staunch allies, you are now in undisturbed and undisturbable possession.

MR. J. A. DERBYSHIRE, Mayor of Brockville, extended an invitation to the Association to hold its next annual convention in Brockville.

NELSON PARLIAMENT, M.P.P., Prince Edward: When I saw the excellent work this Association was doing, I thought I would like to be one of the members and assist in co-ordinating the organization of the dairying industry of this Province of which we are so proud.

We have received a great lesson during the last four years of what organization can accomplish for the people. We have seen that under autocracy they can perfect an organization, but we have also seen that under a democracy they can perfect an organization in four years better than the organization that was perfected under the autocracy in forty or fifty years. That being so, we should continue that organization in all branches of our national industry—agriculture and everything else.

I am sure that we feel alive to the situation, and that we will organize in every way along proper lines. We do not want to overdo organization. It must all be done with a certain purpose that will be beneficial to the country. Everyone admits that it is time we lived up more nearly to the standard that is set for us by the Canadian soldiers who went overseas to defend this country.

It is upon the rural part of the country that we must depend to make this country grow, and I am sure that there are many things which we probably do not see at the present time which will have to be gone into and studied by the rural people.

It was stated by the speakers last night that in Denmark they even changed the political life of that country so that practically all the cabinet positions in Denmark are held by farmers. I do not say the same thing will be done in this country; but I say it was made possible there in twenty or thirty years, and there is no reason why it would not be possible in this country.

We need more independence in this country. All branches of industrial life are organized, and while I would not for a moment stand before you and say we should have class legislation, yet I say the agricultural men and women of this country should be so big that they would not organize with that intention; we

should stand together to build up a great country here, which we are destined to be.

It goes without saying that there will be a large influx of population, and we should now lay the foundation for receiving the foreigners who may come to this country, in order that they may be assimilated into the population, so that we will rear up here a strong, thoroughly Canadian people, and so that this British part of North America will take her proper place in the League of Nations in the years that are to come, when we will be a mighty force in dictating not only the policy of the Dominion of Canada, but the policy of the world. When we have done that, we will have rendered great service to Canada, and we will have been true to the British Empire, and will fill our proper place in the world. (Applause.)

ADDRESS.

PROF. R. HARCOURT, O.A.C., GUELPH.

I am going to talk to you to-night about something that ought to be in place at a Dairymen's Convention. I want to speak of the value of milk as food. There are four things particularly I want to speak about in connection with milk,—its *nutritive value*, *digestibility*, its *palatability* and its *cheapness*. These are qualities that we look for in all foods. We want a nutritious food that is easily digested, that we do not get tired of and that we can get for the least money, and milk answers all these requirements. Milk and its products are among our most nutritious foods.

How do we measure the value of food? Food is valuable as it nourishes the body and as it replaces worn out tissues and gives energy to do work. Our food then, must contain protein, that group of substances which forms flesh in the body. They are originally built up by plants. The animal has no power to originate any of them. They are forms built up from simple substances by the plant, and the animal can transform these into the form which they have in their bodies, but has no powers to originate any of these complex protein materials. Therefore, we must get them in our food either from the plant or from some form of animal substance. Of all the proteins we can get, none are recommended higher in value than those of milk; none are more digestible, so that in no way that we look at it, can we find proteins that are better for the system as a food in every respect than the proteins that we find in milk,—that is, the caseins and the albumens of the milk. We cannot place the proteins of the vegetable kingdom at an equal value, pound for pound, with those we get in the milk.

When we come to fats, we have no form of fat superior to that of milk, and we have no form of food that is more digestible than the fat of milk, so that from the standpoint of food content, milk and its products stand at the head of the list.

We have not a very big range of carbohydrates in our milk. We have largely the one, milk sugar, which is rated amongst the highest in value of all forms of carbohydrate materials.

In digestibility and in fuel value, or any way you like to take it, the carbohydrates that we have in milk are the very highest. If we speak of the mineral matter of the milk, we have in milk those mineral substances which are essential

to the growth of the animal in the putting on of bone and the supply of ash constituents required in the flesh and blood; so that in these four substances—proteins, fats, carbohydrates and mineral matter—milk stands equal to the best and better than the great majority of our fats.

If we want to make a comparison of the value of a food, we calculate it on the basis of the energy it will give us to do work. We can only compare foods on their ability to give us power to do work, or in their heat units, and again milk stands high.

Some of our most recent research work has shown, in addition to the proteins, fats, carbohydrates and mineral matter, there is something else of value in food, and we have never yet been able to take out and examine this "something else" that is to be found in milk, eggs and thin vegetables. Milk carries this wonderful substance which is so essential. Experiments have proven that we may take a purified form of these nutritive substances and feed animals on them without any growth or development, but that as soon as we add a little of the milk fats or egg fats or extract of vegetable, the growth will go on, so that milk has got this substance. Is it any wonder then that milk is so useful in the feeding of the young of all kinds? It has the substances that are required by all forms of life in their growth. It has them in the most digestible form we can get them, and it has got this essential substance, which nobody has been able to get and identify yet but which is necessary for growth in animal life.

So that from a nutritious standpoint, milk stands away at the top of our list of foods, and from a digestible standpoint as well, but that is a question that nobody can settle: One food may agree with one person and not with another, but as a general thing, we may say milk is a palatable food and agrees with most people.

Then if we turn to the question of cheapness, we have to go into a great many figures. I want to speak of it first in this way, that milk stands on the basis of calories of heat, at the top of all our meat foods. If we compare milk on the basis of calories with our vegetable foods, with flour and oatmeal, and so on, and the number of calories that you can buy for a dollar, milk will stand lower than our vegetable foods, our cereal grains, because of the large amount of carbohydrate material. Milk stands cheaper than all forms of flesh foods. At the price you pay for milk, it is the cheapest source of proteins that you can buy. In whole milk, you can buy digestible proteins cheaper than you can buy it in any other form of food that you can purchase to-day.

There have been a great many samples of strong manhood brought up on skimmilk, and I wish there was a good deal more of skimmilk sold throughout the country, because it makes splendid calves, and it will make good boys. Skimmilk carries more digestible proteins for the money expended than we can get out of the whole milk. Skimmilk is one of our very best foods, and the same can be said of buttermilk.

Now with regard to cheese; experiments have demonstrated over and over again that the proteins and fats of the cheese are as fully digestible as that of milk, and that is better than 95 per cent.; so that if we take a well ripened cheese used in conjunction with other foods, especially bulky foods, we get 95 to 100 per cent. digestibility. The reason why we have trouble with it is because of the thoroughness of its digestibility, and that is the reason why we have to take other bulky foods with it. Cheese is a food that is very easily digested. There are plenty of people who will say that is not true, that they know better from their own

experience, but there are other people who say they cannot eat strawberries, because they do not agree with them. No food will be satisfactory to all people, but it stands as a result of experiment that cheese is one of the foods that is very easily digested. One pound of cheese will give you as much or more nourishment than two pounds and a little over of meat; and you can figure for yourselves at the present prices where you will come out on the question of cost. Though you pay 40c. for cheese and 40c. for meat, you are in 40 cents worth of nutrition between the two, and one is no better digested than the other. It is true, of course, when it comes to the question of meats that they have a serving purpose in a mixed meal in the way of gravy, and in one way and another they help along other things more than cheese, but there is a place in our diet for cheese.

We find, in the old country, that cheese is used very largely in luncheons where they get nutrition in small bulk. In the old country, skim milk is converted into cheese in order that they may have cheese that they can rub down and make up easily. It is used in Paris where they are recognizing the high value of it. Statistics in the United States—practically the only ones available on this continent, show that the people use an average of 175 pounds of meat per person per year, and about four pounds of cheese. I think we can, with economy to ourselves, consume more of the cheese and less meat. Take it in any way you like, milk and its products stand higher in all points of food value, and cheaper than the great majority of other foods.

ADDRESS.

HON. GEO. S. HENRY, MINISTER OF AGRICULTURE, PROVINCE OF ONTARIO,
TORONTO.

By saying that I am pleased to be here this afternoon and evening is putting it mildly. It is not the first time I have visited this city by the bay. I have been down here on many occasions, and every time I come I seem to get a warmer welcome.

I come with considerable pride into a gathering of dairymen because privately, I lean that way myself, and for that reason I feel more or less at home when I am in company with men who are engaged in the very important industry of looking after the dairy cow. While my interests have not been just similar to those of the average person here, my knowledge of butter making and cheese making only extends over a few months that I spent at the college at Guelph, therefore, I do not feel that I know much about the cheese industry or the butter industry itself. But there are a great many things in common in the various dairy branches which one can appreciate—difficulties and ups and downs that we have in feeding the live stock on the average farm in the Province of Ontario. I feel, therefore, that when I come to talk to you I have more or less inside knowledge of your occupation, and will be able to understand your problems, and may be able to point a way to improved conditions, and we can assist each other in this, one of the most important industries that we have, as an agricultural people, in the great Province of Ontario.

Of course, in the Department it will be natural for us to maintain anything that has proven of value up to the present. No one should ever approach adminis-

tration or legislation with the view that things are entirely wrong. There is always a reason for everything that exists. Progress must be slow naturally, because we must move along the same lines and not go in an erratic course. We must always recognize that our predecessor has been doing things with a reason. We never can make real progress were we to dwell too much on the past; we must necessarily be feeling out for the new fields of endeavor, new efforts of advancement. We cannot stand still. We must go backwards or forwards, and you know that we, as a people, are never satisfied to go backwards; we are never satisfied to give a foot. Therefore, we must press on.

For that reason I look with hope and expectation toward the annual gatherings that we have in our various conventions of one kind and another. These associations will give expression to the members' views and will work out problems and place them before us.

At the present time we are face to face with the great problem of reconstruction. We as a people have never faced conditions such as we are about to face this year and for the years that are to follow. We have in the past pioneered and proved ourselves successful as a people in various lines, and for that reason we approach a new field of activity—a new set of conditions, with all the confidence that would naturally come to a people such as ourselves, and with such a confidence that would naturally come to us when we think of the representatives that we have sent across the seas—men who never gave an inch, who never lost a gain, and who never failed to take an objective that they set out to take.

Then I think of the proud position they have attained in the eyes of the enemy. You have all noticed in the official dispatches of Sir Douglas Haig, the other day, that the Commander-in-Chief, Gen. Foch, played a ruse on the Germans. We have often asked ourselves for months past what was the real reason for the failure of the Germans to go through at Amiens; why they turned back? Sir Douglas Haig tells us that a counter-offensive was planned—at least was thought to be planned from the German standpoint, on the Flanders front. The Canadian divisions were deliberately placed in the front lines and advertised as being there, and the Germans said to themselves, "The Canadians are here, and an offensive is on and we must prepare for it." That is the reputation that our boys gained for themselves in the eyes of the enemy. What a proud position they occupied, to be known as one of the instruments, one of the divisions that would be used in the great offensives that took place from time to time. We are all proud that our boys from Canada have risen to such a high place of efficiency, so that they were looked on as some of the real men that were called on for a man's job when occasion required.

With that knowledge before us we should have every reason to approach our period of re-construction with the greatest of confidence. Pessimists may tell us that things are going wrong, that Bolshevism is going to spread among our people. We must have confidence in ourselves that we are a liberty loving people that have shown ourselves capable of using liberty, possibly as no other people in the world have. We have no reason to anticipate any of the dire consequences that are showing themselves in the European countries. We look at Germany to-day and we realize that they do not know what leadership is. They have never been schooled in the school that we Canadians have been in. From municipal life right up through to Parliament, every man is free to have a voice and everyone has been given a chance to take an active part in municipal and other administrative capacities. We have learned in that way the capacity of governing and

developing ourselves, such as they have not in the 'Old Countries, where autocracy has ruled them for all time.

Remembering that nearly 60,000 of our boys lie in Flanders Fields, it has been suggested that there should be some form of memorial for the boys who have gone from various centres. I noticed in the paper a day or two ago a suggestion that has taken root in the American Republic to the south of us, that they should plant an oak or some other tree as a memorial to all those who have gone away not to return. There was one churchyard in a district from which four boys had gone, and it was suggested that there should be four trees planted as a living memorial to those who will not come back again. I just wondered if that was not a fair idea for the people of Canada. We have been sending over for some years, seeds from the maple to grow saplings so as to have them planted in the various cemeteries in France and Flanders, and I just wondered if we could not, as a people, plant in our parks and on the village green and on our main highways and in our various centres, trees in memory of the boys who will not return.

We go along from year to year and say that tree planting is a nice thing, but we should do it. Other activities press upon us when trees should be planted, and then the work becomes entirely forgotten, but I would like to throw out this suggestion, because it appeals to me rather forcibly, and I think it would be well worthy of development throughout the Province.

I understand the Federal Department has talked on the advisability of carrying on and doing what you can to insure an increased production, particularly along live stock lines. We approach a period when we do not know what prices are going to be, but I think it is evident on the face of it that the last thing that is going to be affected in the way of prices is live stock and its products, and for that reason we should have every confidence, as a people, in developing our live stock and in increasing our dairy products. Feeds are high now, but they will come down long before the products which are produced from the feed come down, and we will have a chance to have a handsome return by keeping on producing, because we will be able to buy the foods much cheaper. This is particularly so in connection with dairy products and the product of bacon, because the process from the raw material into the finished product requires a comparatively short space of time. For that reason, there is every indication of good prospects for dairymen and the allied industries in this Province of Ontario. I would like you to feel confident, and not be swept away by the feeling that things are going wrong.

I was rather struck by a statement I heard a week or so ago, by one of my neighbors who had been marketing some hogs in one of the city abattoirs. He said that the man at the abattoir said to him, that there were fully a thousand sows sent in the week previous. There is nothing going to injure us so quickly as getting what someone might call a "dose of nerves." There is not any indication that is as permanent at this very moment as the bacon industry. As an indication of that, I increased my holding this winter along that very line, appreciating that prices were going to be good for our bacon, with the possibility of being able to feed hogs comparatively cheaper than we have been able to in the past. There is nothing that is going to hurt us so much as a panic on the farm, as shifting from one line to another. The man who wins out in the end is the one who decides on his purpose, equips himself for his line of activity and sticks to it. The man who is shifting from one thing to another, my experience has

taught me, does not succeed. There is nothing that retards a country so much as shifting from one line of endeavor to another. For that reason I appeal to you, not to change your line of activity. Dairymen as a rule do not change as much as in some other lines of agriculture, but I would ask you to keep up to your maximum.

There is another thing that is going to come out of the war, and that is, we have developed in ourselves a capacity to do things with less labor by the use of machinery of various forms. I feel that the dairymen of Ontario will, from now on, produce greater than they have ever done before, per capita, that the capacity of the individual man will be greater, from now on, than it has ever been, by the use of machinery and by labor saving devices. No man is going to get a great amount out of his endeavour unless he systematically and wisely plans to use all the labor saving devices that promise to give him real results. It may not be possible for every farmer in the Province of Ontario to take to tractor farming. That does not appeal to some parts of Eastern Ontario, but there are a great many other labor saving devices that can be applied on the average farm. Some of us are inclined to look upon a certain operation on the farm as not taking very long, but it must be remembered that it has to be done 365 times on the dairy farm every year,—sometimes 730 times, and anything that will reduce any part of that labor that has to be done twice a day, is a great help and advantage.

I am very pleased to know of the growing use of the mechanical milker. I am not acting as an agent for any of them; in fact I was more or less antagonistic to the mechanical milker for many years. I saw one of them tried at Guelph some twenty odd years ago, when it was not at all satisfactory, but my experience in the last few years has proven to me that we have been a little inclined to be prejudicially slow in taking advantage of the appliances that our dairy needs. There are various forms of mechanical milkers now on the market that are giving good service, and a great number of them are being used in the eastern part of the Province. It would be well for those who are milking a herd of fifteen cows or upwards to consider the advisability of installing one of these machines. They are not difficult machines to operate; in fact you will find instances innumerable where a boy of twelve or fourteen, after a little instruction, will be able to give good results, especially in harvest time when the milking of cows is one of very serious moment, because the farmer is so anxious to get in his crops.

If you cannot send your boy to the Kemptville School, let him try a short course in your own county. All the counties of the Province are having short courses now, for the boys, during this month, giving them a chance to freshen up and get a taste for better agriculture. After the boy has taken a short course, if he finds there are other avenues he would like to follow up, then you can send him to Kemptville or to Guelph. Kemptville is a school for teaching the lower forms that are taught in the earlier years at the College, at Guelph. We are anxious to get as many of the boys closely in touch with the scientific study of agriculture as we can, because we appreciate that if we can do this, great benefits will ensue and it will open the door of science to our boys, and help to get them on the farm. We want our boys to stay on the farm, and we must not do anything that will retard the development of the farm, and we must do everything that will encourage the boys to stay on the farm, because we, as a people, are depending on our agricultural wealth in the first instance. For that reason, I appeal to you, fathers and mothers and friends of the boys in your various neighborhood's to do all you can to encourage the boys to stay on the farm. Give

them a short course, and then send them to Kemptville or Guelph, and then they can come back to the farm as missionaries of a brighter and broader agriculture.

When I was a boy attending college at Guelph, the farmers were more or less inclined to laugh at book agriculture, but the changes that have taken place in the last twenty years have caused the farmers to recognize Guelph as a Mecca for agriculture. It is the authority on what we want to know in the development of our great basic industry. It is necessary for us to continue to study. The Department blue books are of advantage, and I would ask you, on winter evenings, to take them down and look them through. Don't throw these books in the waste paper basket, but go through them, and you will find something of importance and advantage to you, and if there is anything in them that you do not understand, call up your Agricultural Representative. That is what he is there for. He is our ambassador in your county, who is sent there to give you information. We cannot get the best results unless men on the farms come to us and ask us to help to deal with their problems.

The endeavour of the Department as a whole is for the development and betterment of the average man on the average farm. Some people may say "You will try to develop the breeders of pure bred stock and help the big interests on the large farms." That is not the case. The men we particularly want to help is the average man on the average farm; the man who gets up in the large scale and becomes a big operator and gets a name, has won his place and he does not need education or assistance. It is the average man on the farm we want to awaken, and to that end the efforts of the Department of Agriculture in the Province of Ontario are bent.

We have read in the press, in recent months, that agriculture is going to be called on to pay the war debt of the Dominion. I am rather proud of that, and I think we should feel ourselves fortunate that as an industry we are going to play such a large part in paying the war debt, not that it is to be a burden upon us, but it will be an opportunity for service that we, more than any others in the whole broad Dominion, are to be looked to to provide the exports that will give us a favorable balance of trade, to enable us to square our accounts annually with the Old Country. I look on that as an opportunity for service, and an opportunity for advancing. There is every prospect that while we are going to undertake a large part in meeting the war debt and in keeping this country in sound financial position, at the same time we are going to have our toll out of it, and we are going to be amply paid for our services.

In closing, I want to appeal to the people of Eastern Ontario, agriculturists, farmers and the dairymen specially, those who are upholding this basic industry in the Eastern part of the Province, to take a broad view of our national endeavour. Let us, as a farming community, rise to the highest of ideals. May we realize in ourselves the highest national ideals of any section of the people of this Province. Don't let us drift on into a position that we are going to look after our own interests and nothing else. There is nothing that would be more fatal to us than such a doctrine. No man is going to get the full value out of life if he thinks of nothing but his own interests. He must recognize his position as a citizen and make the best of his opportunities. Therefore, let us, as agriculturists, realize that if we are to hold a high ideal and show that we have confidence in ourselves and confidence that in Canada we are destined to be a great people, we will rise above the small, petty divisions that are sometimes fed to us by men who are not thinking wisely and along sane lines.

I want to close with a quotation from possibly the greatest farmer that the American continent has produced, the late W. D. Hoard, who has been such an influence for the betterment of dairymen throughout the whole continent. In a memorial number that was recently published by his paper, these lines occur, and you will notice that it is a message to the people of the American Republic, and I am not changing the words, knowing they fit our own country, Canada:

“When our fathers founded this Republic, they never dreamed that men would measure their civic duty by the trade that followed. No greater lovers of agriculture ever existed than the heroes of the revolutionary period, yet what would be the astonishment of our fathers if they could attend some of the later day conventions and hear our farmers urged to vote on questions of national necessity, not as citizens, but simply as farmers. All these questions of general public moment must be looked at and weighed in the light of our relations to each other as citizens, equal partners in one great concern, and not by the trade we follow.” That I think should be the attitude that should be followed in this Province. (Applause.)

A vote of thanks to the speakers of the evening and an invitation to spend a social half-hour at the Belleville Club brought a most successful convention to a close.

Dairymen's Association of Western Ontario

The Fifty-second Annual Convention of the Dairymen's Association of Western Ontario was held at London on Wednesday and Thursday, January 15th and 16th, 1919. The President, James Donaldson, occupied the chair at all the meetings. The attendance was exceptionally good, and the interest taken in the addresses was kept up until the last paper had been read. The exhibit of dairy products was the best ever held under the auspices of the association, and while not the largest, was perhaps the most attractive exhibit of dairy products ever shown in Ontario.

PRESIDENT'S ADDRESS.

JAMES DONALDSON, ATWOOD.

We have had a very favorable year for dairying. The supply of milk has been fairly large, and the prices realized in all branches of dairying have been very satisfactory to those engaged in the business. During the past year the dairy business, particularly the cheese branch, has been run on somewhat different lines than formerly. As the producers' representative on that Dairy Produce Commission, I did not leave any stone unturned, that I could move, to try and make matters as favorable as possible in regard to every phase of the business and in the handling of the cheese and butter that was shipped to Montreal for export.

Last fall, the Dominion Government called together, at Ottawa, representatives of all branches of the dairy business from the Atlantic to the Pacific, and a great deal of valuable work was done. Every department of this great industry was discussed by the best men that could be called together from different parts of the Dominion of Canada. Not only was the production of cheese and butter discussed, but every phase of the dairy business, including condensed milk, milk production for domestic consumption, etc. The outcome of that meeting was the formation of what is to be known as the National Dairy Council. That is a matter that will be dealt with at greater length during the sessions of this convention. After hearing the discussion at Ottawa, I am firmly of the opinion that when the National Dairy Council is fully organized and established, we can look for good results in connection with the advancement of our industry in all its branches. The National Dairy Council will be composed of the best men in the business; I personally know quite a few of them, and from what I know of them and from the way the different matters were discussed at Ottawa, I am convinced that we have in that council some of the brightest men in connection with dairying in the Dominion of Canada.

DIRECTORS' REPORT, 1918.

Your Directors beg to submit the following report. The season just closed may be said to have been a fairly profitable one for the dairymen, prices for all dairy products ruled high, and no prolonged period of dry warm weather was experienced. Pastures and fodder crops yielded well in comparison with some other years. The labor shortage, however, was a factor with which producers and factorymen had to contend. In this connection it may be pointed out that the output of creamery butter did not diminish, while the output of cheese was slightly less than in 1917. The total cheese output for the season was affected to some extent by the shortage of milk for city consumption occurring in the Fall, which made it possible for a portion of the milk which would have been sent to the cheese factories for the Fall months, to be diverted into other channels.

The number of cream buying stations throughout Western Ontario was increased by a few more creameries adopting this method of purchasing cream. For the third time we wish to express our doubts of the wisdom of this movement, giving as reasons (a) probable effect on butter quality, (b) economic, (c) increase of competition for cream to the point where disastrous disorganization of the creamery industry may result. We would suggest that in their own interests the creamery men and producers should come to some understanding regarding this point, and either submit to drastic regulation of the cream buying stations or agree to eliminate this method of selling or purchasing cream. Delivery to the local creamery or direct shipment is the suggested solution of the problem.

MEMBERSHIP. Your Association had a membership for the past year of 276. Subscription to *Farm & Dairy* is included in the membership fee of \$1.00.

SPECIAL OFFICER. A special officer was again employed to deal with cases of deterioration of milk delivered to cheese factories. Twenty-four cases were reported and fines from \$10 to \$50 were imposed by Magistrates.

DAIRY HERD COMPETITION. Owing to the small number of entries in 1917 your Directors decided to temporarily discontinue the competition until conditions become normal. This competition has perhaps served its purpose in being the means of starting some of our progressive dairymen on the way to permanent success. Their example has encouraged other milk producers.

DAIRY EXHIBITION. Your Directors decided to donate an amount of money to the prize list equal to that of last year, and we appreciate your support. A class for June 14 pound box butter was decided upon, and the number of entries is distinctly encouraging. We feel that this portion of the dairy exhibit will be of special interest. We wish to call attention to the increased number of special prizes, and to specially thank every person who donated these prizes.

INSTRUCTION WORK. A full report of the work of dairy instruction will be submitted by the chief instructor. The butter "grading service" inaugurated by the Ontario Department of Agriculture was continued during the past year, and although market conditions were not favorable to the selling of butter "on grade," yet the machinery for doing the grading is now well established, and as soon as conditions warrant no doubt a greater number of creameries will avail themselves of this service. We respectfully recommend that this work be continued in conjunction with the regular dairy instruction work.

SPEAKERS FOR ANNUAL MEETINGS. The Dairy Branch of the Ontario Department of Agriculture again provided speakers for the annual factory

meetings. This work is much appreciated and will be continued during the present winter.

LEGISLATION. At the Dairy Conference, held at Ottawa in November last, a Dairy Council was formed, details regarding which will no doubt be under discussion at this convention. A number of recommendations were made in connection with "standards for dairy products," "standards for grading dairy products," etc. In December, the Milk and Cream Producers' Association recommended to the Provincial Government that certain sections of the Dairy Standards Act, governing the testing of milk and cream, should be put into force.

BOARD MEETINGS. Your Directors have endeavored to carry on the business of the Association to the best of their ability. We wish to express our appreciation of the excellent work done by both the Federal and Provincial Departments of Agriculture, and also beg to point out that the desire and aim of this Association is to assist in placing the dairy industry on a solid basis and to keep the quality of our dairy products second to none.

Your President was appointed a member of the Dairy Produce Commission, and his good work in this connection speaks for itself.

Authorities state that for the next several years dairy products will be in heavy demand by Great Britain. Indications point to a long period of good prices for these products. Dairy farmers are urged to conserve their breeding stock and increase their herds, at the same time developing a class of cows which will produce at a profit.

Factory cheese and buttermaking tends to increase the raising of live stock. The valuable by-products of whey, skim milk and buttermilk are among the cheapest and best foods for young stock and of immense importance in the economic production of hogs and beef. The cheese and butter industry should, therefore, receive every encouragement not only for the reasons mentioned, but also that there may be no decrease in the output. The labor situation should improve for the coming season and dairy farmers and factory men will not likely be handicapped to the same extent as was the case during the war.

The great world war is over and allied victory is complete. Peace has dawned upon the world, and the re-adjustment period is now at hand. May we, so far as is humanly possible, meet these changed conditions and put forth every effort to increase the much needed special food supplies of the world—dairy products. Not only is the opportunity at hand for increasing the supplies but to improve the quality as well.

DAIRYMEN'S PATRIOTIC FUND. When the war broke out in 1914, it was decided by your directors to inaugurate a Dairymen's Patriotic Fund, the proceeds of which were to be donated to the Canadian Red Cross and Patriotic Funds, and to the Belgian Relief Fund. Each year, as the war went on, reference was made to this fund in the Directors' report. The factories or individuals contributing to this fund were notified regarding the disposal of same, and although no contributions were received during 1918 on account of the fact that the money was donated by the individual patron to their county organizations, yet it was felt that now the war is over a final complete financial statement should be given. The books of the Secretary of the Patriotic Fund have been audited and a signed auditor's statement is attached to this report to be printed in the annual report of the association. The fund is now closed. The account was handled by the Bank of Toronto, free of charge, and all cheques were cashed at par. The Secretary's services were given free, the Association paid for any necessary printing, stationery and postage, therefore no expense whatever came out of the fund.

FINANCIAL STATEMENT, DAIRYMEN'S PATRIOTIC FUND.

RECEIPTS.

1914.

Oct.	5.	T. Fred Boyes, Lambeth	\$5 00
"	12.	J. H. Herron, Norwich	5 00
"	17.	Patrons, White's Creamery, Mooretown	44 00
"	19.	Robt. Snell, Norwich	10 00
"	20.	D. McMillan, Stratford	5 00
"	21.	Patrons, Maple Grove Cheese Factory, Stratford	111 00
"	26.	Geo. Travis, Courtland	5 00
"	27.	Patrons, Canboro Cheese Factory, Canboro	145 00
Nov.	4.	E. Ginther, Marshville	5 00
"	5.	G. Rickwood, Essex	5 00
"	6.	Patrons, Folden's Cheese Factory, Ingersoll	78 90
"	9.	" Trowbridge Cheese Factory, Trowbridge	115 50
"	9.	" Arkona Cheese Factory, Arkona	84 49
"	12.	" Forest Creamery, Forest	138 00
"	14.	" Selkirk and Cayuga Creameries, Selkirk and Cayuga ...	470 40
"	18.	" Culloden Cheese Factory, Culloden	84 90
"	19.	" Evelyn Cheese Factory, Thamesford	80 70
"	20.	" Black Creek Cheese Factory, Stratford	207 54
"	21.	" & Co., E. Zorra and Blandford Cheese Factory, Innerkip	314 10
"	23.	" Bluevale Creamery, Bluevale	32 11
"	23.	" Paramount Cheese Factory, Paramount	62 50
"	24.	" Attercliffe Cheese Factory, Attercliffe	76 41
"	25.	" Winchelsea Creamery, Winchelsea	292 44
"	25.	J. B. Smith, Alton	33 35
"	27.	Patrons, Newry Cheese Factory, Atwood	46 50
"	30.	" Maitland Cheese Factory, Atwood	55 25
Dec.	1.	" Osborne Cheese Factory, Corunna	61 20
"	7.	" Elma Cheese Factory, Atwood	183 00
"	7.	R. A. Thompson, Atwood	5 00
"	8.	Patrons, Dereham & Norwich Union Cheese Factory, Zenda	50 00
"	10.	" Delaware Cheese Factory, Lambeth	116 92
"	12.	" Thamesford Cheese Factory, Thamesford	20 80
"	14.	" Elma & Mornington Cheese Factory, Britton	193 76
"	14.	" West Nissouri Cheese Factory, Thorndale	95 95
"	16.	" S. Walsingham Cheese Factory, Pt. Rowan	150 28
"	29.	" Silver Corners Cheese Factory, Moncrief	77 00
"	29.	" Elmbank Cheese Factory, Listowel	67 89
"	29.	" Wallace Cheese Factory, Listowel	182 92
"	29.	" Molesworth Cheese Factory, Listowel	160 27
"	29.	" Marion Beaver Cheese Factory, Palmerston	68 50
"	30.	J. A. McHoover, Burgessville	10 00
"	31.	Patrons, Ridgeway Creamery, Ridgeway	100 45
"	31.	" Ripley Cheese Factory, Ripley	61 95
"	31.	" Ballymote Cheese Factory, Ettrick	100 00

1915.

Jan.	2.	Patrons, E. Zorra & Blandford Cheese Factory, Innerkip	2 00
"	2.	F. Hearn, London	10 00
"	12.	Patrons, Salford Cheese Factory, Ingersoll	147 15
"	18.	" New Dundee Creamery, New Dundee	54 75
"	22.	" Lambton Creamery Co., Petrolia	100 00
Mar.	6.	" Millbank Cheese Factory, Millbank	221 85
Apr.	17.	" Corbett Creamery, Parkhill	50 00
"	19.	" Donegal Cheese Factory, Atwood	79 00

1916.

Jan.	21.	Patrons, Ripley Cheese & Butter Co., Ripley	83 85
Feb.	10.	" German Union Cheese Factory, New Hamburg	100 00
"	10.	H. J. Neeb, New Hamburg	10 00

1917.

Feb. 22. Patrons, German Union Cheese Factory, New Hamburg	\$150 00
“ 22. “ H. J. Neeb, New Hamburg	10 00
Total	\$5,237 58

DISBURSEMENTS.

1915.

Feb. 1. Noel Marshall, Sec.-Treas. Canadian Red Cross Fund, 77 King St. E., Toronto	\$1,000 00
“ 1. Hector Prudhomme, Belgian Consul, 59 St. Peters St., Montreal .	1,000 00
“ 1. Hon. W. T. White, Sec.-Treas. Patriotic Fund, Ottawa	2,532 88
Mar. 18. Noel Marshall, Canadian Red Cross Fund	121 85
“ 18. Hon. W. T. White, Canadian Patriotic Fund	100 00
Apr. 17. Noel Marshall, Canadian Red Cross Fund	25 00
“ 17. Hon. W. T. White, Canadian Patriotic Fund	25 00
“ 30. Noel Marshall, Canadian Red Cross Fund	30 00
“ 30. Hon. W. T. White, Canadian Patriotic Fund	49 00

1916.

Feb. 2. Hon. W. T. White, Canadian Patriotic Fund	83 85
“ 28. Hon. W. T. White, Canadian Patriotic Fund	110 00

1917.

Feb. 22. Hon. W. T. White, Canadian Patriotic Fund	75 00
“ 22. Noel Marshall, Canadian Red Cross Fund	85 00
Total disbursements	\$5,237 58
Total receipts	5,237 58
Balance . . . . .	.....

We, the undersigned auditors, have examined the books, cheques, vouchers, and bank book in connection with the Dairymen's Patriotic Fund, and find everything correct, and also find that a total amount of \$5,237.58 has been received and the same amount has been paid out to the various funds as stated under "disbursements."

J. C. HEGLER, }
J. A. NELLES, }

Auditors.

FRANK HERNS,
Secretary-Treasurer.

JAS. DONALDSON,
President, D.A.W.O.

January 7th, 1919.

It is with the most sincere regret that we record the death of one of our past Presidents and a Director of this Association for many years, the late Mr. J. N. Paget, of Canboro.

He was born in Norwood, Ont., and as a dairyman of Haldimand County, he was for over thirty years one of the strongest supporters of this Association, and in his unyielding faithfulness and clear thinking, helped to lay a broad and deep foundation for the dairy industry of not only Western Ontario but of the Province.

His sound judgment and logical methods of dealing with the big questions which came before this Association, made him looked upon as one whose advice and assistance was always of special importance.

The many years in which he has been elected a Director of this Association after his term as President expired, shows the respect in which he was held and the appreciation of his work by his fellow dairymen.

He was always willing to take his share of the load of responsibility in connection with any large dairy problems which had to be faced from time to time, and when any difficult situation developed which required special ability to deal with, he was one of the men who could always be depended upon to present the matter in proper light, with strong logical arguments.

For many years he was Superintendent of the Dairy Building of the Canadian National Exhibition at Toronto, and his honesty of purpose, his painstaking accuracy in handling the many details in connection with the dairy exhibits and the confidence which exhibitors placed in him were important factors in the growth of the dairy exhibition.

As an institute speaker, he preached the "gospel of dairying" in all parts of Ontario and his influence in this connection will be long felt.

Since the inauguration of *Farm and Dairy* he has filled the position of Director almost continuously, as representative of this Association.

In the management of his factory he was up to date in every respect and carried on his business in an honorable, upright manner. He served the people of his community, during his life time, with zeal and care for the welfare of his patrons, and made sure that the quality of the dairy products turned out from the Canboro factory were always of the very highest grade, for which he received the highest price.

He always supported and practiced manufacturing methods which insured high grade dairy products and at some sacrifice at times to his own business he continued to insist that the raw material and the finished goods should conform to the high standard required for the export trade, of which he was always a staunch supporter, realizing as he did that Canada's future and pre-eminence as a dairy producing country was dependent upon the export trade.

He will be missed not only in his own community but by the dairymen of Ontario and of the whole Dominion. To his family is extended sincere sympathy in their bereavement.

MR. F. HERNS then presented the financial statement. This and the Directors' Report were, on motion of MR. F. BOYES and R. W. STRATTON, received and adopted.

IMPROVING THE DAIRY HERD.

GEO. H. BARR, OTTAWA.

I am sure the dairymen of Ontario will be sorry to learn that Mr. C. F. Whitley, who for so many years addressed the dairymen's conventions on the subject of Cow Testing, has been helpless since June as the result of a paralytic stroke. Mr. Whitley was deeply interested in this work, and we shall miss his flowery eloquence in dealing with this somewhat dry but nevertheless important subject of improving the dairy herd.

Some splendid work has been done during the past twenty years in improving the milking qualities of Canadian dairy cows. For example, some twenty odd years ago, I was invited to speak at a convention of students and dairymen at the Western Dairy School, Strathroy. I was then making cheese and butter at Ballantyne's Black Creek Factory, near Sebringville, and I took occasion to state at the convention that one of the Black Creek patrons had that year sent to the

factory slightly over 50,000 pounds of milk from a herd of ten cows. At that time, this was considered an exceptionally high average for a herd of ten cows, and some of the farmers at that convention could scarcely credit the truth of the statement.

Twenty years ago that Black Creek herd was a greater wonder than a herd giving 10,000 pounds of milk per cow is to-day, but have we got rid of all the poor cows and herds in the last twenty years?

In our cow testing work in 1918 we received records of about 14,000 cows in the month of July. Seven per cent. of these cows gave milk testing under 3 per cent. fat, quite a number tested under 2 per cent., and two and a half per cent. of this number gave less than 400 lbs. of milk in 30 days, which means we still have many cows giving less than 4,000 lbs. of milk in their milking period, and many more which give very little over 100 lbs. of fat in a year.

So there is still room for improvement, and this brings up the question: What is the best way to improve or build up a dairy herd? Some one says, "Sell the poor cows," but I want to ask, "How are you going to tell which are the poor cows?" and some one again says, "Oh, I know which are the poor cows in my herd. I milk the cows every day and I know." Is there not a big chance that you are mistaken? It is rather difficult to tell from memory just how each cow in the herd milked every day or week or for say ten months, but when the milk is weighed and tested and a record kept of it, there is no guessing about it; you know.

I believe the simplest and most economical way to keep records is to take up the cow testing work as carried on by the Dairy Division, Ottawa. The details of the plan may be found in Circular No. 25, copies of which may be secured free, by writing to the Dairy Commissioner, Department of Agriculture, Ottawa.

A member of our cow testing work writes as follows:

In what experience I have had, I find that the milk from some cows foams more in the pail when milking than that from others, which will lead many to believe they are big milkers, but when the pail is put on the scale, it tells a different story.

In regard to testing, I found that my best show cows were not the best testers; therefore, how can a man judge for himself with best results which cows to raise heifer calves from without this system of weighing and testing. I would strongly recommend this system to all farmers not engaged in official testing, for three reasons:

1. It costs very little.
2. It increases your interest and enables you to get a first-class herd.
3. Weighing the milk every day gives you accurate information as to the value of each cow as a milk producer.

These are perfectly good reasons, are they not? If the weighing and testing is done carefully, the owner of the herd will know which cows respond to extra feed. He may also find that some of the cows are unprofitable and, of course, they will all grow old, so there must be some plan to replace them. New cows can be bought, but I am inclined to think it is not the best plan. I believe a better way to build up a dairy herd is to follow the plan suggested in the letter I have just read; raise the heifer calves from the best cows.

This brings us to an important feature in dairy herd improvement! the sire. Have dairymen been paying enough attention to the dairy sire question? I don't believe they have, and the result is, we still have many herds of dairy cows giving comparatively small quantities of milk and also milk extremely low in butter fat, because the sires that have been used were bred from no better and sometimes poorer milk producing stock than the cows.

Suppose a herd of cows average 5,000 pounds of milk per year and the per cent. of fat is 3.8. Are the heifers from these cows likely to give larger quantities of milk and test higher in fat if the sire's immediate ancestors gave less than 5,000 lbs. of milk per year, or the percentage of fat is less than 3.8? How many patrons of cheese factories and creameries in Canada can tell how much milk and fat the dam of the dairy sire they are using, gave yearly? They will tell you he is pure-bred, but further than that they know very little. If a breeder of horses wants to increase the size of his horses, he will use big heavy sires. If he wants to raise a colt that will trot faster than its dam, he will take out his watch and see how fast the sire can trot, but when it comes to raising dairy heifers, it often looks as if dairymen paid little or no attention to any particular qualifications in the sires.

We will admit that size and conformation are important, but they are not always reliable guides as to the value of a dairy sire. To my mind, the dairy sire should stand first for larger quantities and higher testing milk from his offspring. Beauty and conformation are a secondary consideration.

How can we be reasonably certain to get heifers that will produce larger quantities of milk and fat than their dams? There is only one plan that will give anything like certainty; always be sure the female ancestors of the sire gave larger quantities of milk and higher testing milk than your own cows are giving.

When one thinks of the dairy sires that are scattered over this country, both grades and pure-bred, for which there is no record of milk or fat producing qualities of their ancestors, it is simply astonishing. It is bad enough to use a grade animal, but to my mind, it is even worse to invest money in a pure-bred animal and know nothing about his ancestors' milk producing qualities, and yet scores of pure-bred dairy bulls are being sold every year with no records to show how they are bred in regard to milk production. They may have pedigrees a mile long, but that does not mean that their female offsprings will be any better milk producers than their dams.

I take it that the business of a dairy herd is to produce milk economically. If the head of the herd is bred from a strain of cattle that produces milk and fat economically, does it not follow that his offspring will have the same characteristics?

Increased production can only come from two sources; better feeding and better breeding. Any improvement from breeding must come through the sire. What may happen if the sire is not properly bred? Allow me to quote a paragraph or two from an article published in *Farm & Dairy* last October.

At the Cap Rouge Experimental Station, a very fine French-Canadian bull, which will be called Z, was bought a few years ago, one that would easily have won championship honors at any exhibition in Canada against all comers. Moreover, this bull, according to ordinary standards, was of a conformation which induced one to believe that he was of a heavy milking strain and would produce good heifers. But, unfortunately, such was not the case, and he did not leave a single heifer which was worth keeping as a milk producer.

Cow A, to the service of another bull, produced a daughter which later qualified for Record of Performance with 7,794 pounds of milk, whilst to the service of Z, she gave a heifer which never gave 15 pounds of milk per day during her first lactation period.

Cow B qualified for Record of Performance as a three-year-old with 5,332 pounds of milk, gave 4,624 pounds during her first period of lactation and averaged 6,117 during her first five years in milk. Her daughter, by Z, gave only 3,040 pounds during her first period of lactation.

Cow C was out of a dam which qualified for Record of Performance with 9,747 pounds of milk, but herself failed to qualify, though tried two different years. She gave

only 3,297 pounds during her first period of lactation and her daughter, by Z, only gave 2,800 pounds during her first period of lactation.

Cow D qualified for Record of Performance with 8,358 pounds of milk and her daughter, by Z, only gave 2,776 pounds during her first lactation period.

Cow E qualified for Record of Performance as a two-year-old with 4,547 pounds of milk, and as a three-year-old with 5,530 pounds, whilst her daughter, by Z, only averaged 2,731 pounds during the first two periods of lactation.

Cow F is the dam of a cow which gave 10,229 pounds of milk in 365 days, and her daughter, by Z, only gave 2,401 pounds during her first lactation period.

Cow G averaged 5,271 pounds during four lactation periods, going up to 6,224 in one of them, and her daughter, by Z, only gave 2,947 pounds during her first 365 days in milk.

Does this not prove that it is absolutely necessary to know the history of the sire's ancestors, and should we not place before the dairy farmers of this country more forcibly than ever the necessity and value of getting records of the milk and fat produced by the ancestors of dairy sires? When I say milk records, I do not mean a 3 day or a seven day record; I mean a record for the full milking period. If the purchasers of pure-bred dairy stock demand this information before buying, they will get it, for the breeders cannot afford to have it advertised that they are not in a position to provide such records.

The Dairy Commissioner's Branch employs a Supervisor of Cow Testing in each of the following provinces: Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba and Saskatchewan. These men are constantly being asked where pure-bred dairy sires can be purchased. We have decided that in future they will direct prospective buyers of pure-bred dairy stock to only those breeders who are prepared to give reliable milk and fat records of the animal's ancestry. We believe this is necessary, if the dairy herds of the country are going to be improved as they should be.

In closing, allow me to make a suggestion in regard to judging dairy cattle at our exhibitions. I will admit that beauty of form and type are important, but I believe the time has come when a judge of dairy cattle should have something more to guide him in placing the prizes than form and type. Of what value is a dairy cow if she is not an economical producer of milk? Of what value is a dairy sire unless he is bred from cattle that are economical producers of milk? I am inclined to think that a cow with a beautiful form without the qualifications to produce milk economically is one of the worst snares we could possibly have in the dairy business, and I know that a dairy sire, no matter how true he is to type and conformation, if he has not behind him ancestors that are economical producers of milk, will be a hindrance instead of a benefit to the community in which he is placed. I would, therefore, suggest that in judging dairy cattle, the milk records of the cows and the milk records of the immediate female ancestors of the bulls be produced, and that these records be given an important place in awarding the prizes. If this were done, it would place a premium on cow efficiency and a check on the spread of what one may term "fancy" but mighty poor mortgage lifting stock, from the ordinary dairyman's standpoint.

CO-OPERATIVE WORK IN DAIRYING.

H. B. COWAN, PETERBORO.

I had the privilege last week of saying a few words on this subject at Belleville. I was informed afterwards that there had been considerable speculation among the members as to just what Cowan expected to get out of this company. In case there may be some here wondering on the same question, I might say that I do not expect to get any more out of this than I did out of other things that I have advocated:—Grouping of factories for instruction purposes, certificates for cheese and butter makers, etc.

In connection with the proposal to establish a dairy company in the Province of Ontario similar to the Saskatchewan Co-operative Creamery Company in the west, I may state that about two years ago the United Farmers of Ontario, growing out of the great success of the farmers' organization in the West, felt that possibly the time was ripe to establish a similar company, on similar lines, in Ontario, and a committee was appointed to look into the matter. I was appointed Chairman of the Committee, and that is how I come to be speaking to you to-day. We investigated the matter thoroughly. Just recently through the Hon. Mr. Crerar's co-operation, we had a committee of Ontario farmers appointed to look into the matter. Your Chairman, Mr. Donaldson, was appointed on that committee. This committee went out West and investigated the matter thoroughly, and they are satisfied that it can be made a success in this province. This matter of farmers getting together is in the air, and it is the natural consequence of the success of these companies in the West. We frequently hear it said that dairy conditions in Ontario are different to what they are in the West. The difference is not nearly as great as some people try to make out.

Noting the marked success of the Saskatchewan Co-operative Elevator Company the Provincial Government suggested that the Dairy Farmers should form a Co-operative Dairy Company on similar lines, and offered to help by passing the necessary legislation, and the Saskatchewan Creamery Company was formed. It was formed in 1917, and has taken over twenty creameries. The Government appointed an arbitrator or valuator, the company appointed one and the local creamery appointed one. These three men inspected the creamery and placed a valuation on it, and if that valuation was accepted the stock of the local company was transferred for stock of the big company. The local company formed a unit of the larger company and appointed a director to attend the annual meeting. This company was managed entirely by the farmers. Let me give you a few figures to show the success of the Saskatchewan Co-operative Creamery Company. They took over the company supplying milk in the City of Regina, and they have also taken over four cold storage plants at central points. At a recent meeting of the directors this statement was presented: Authorized capital \$500,000; assets \$300,000; paid up capital \$177,000. This company was only organized two years ago and now they own and operate twenty creameries, four cold storage plants, eight cream buying stations, and two poultry killing stations. In 1918 they manufactured 2,800,000 lbs. of butter, 100,000 gallons of Ice Cream, 1,500,000 quarts of milk 100,000 gallons of cream.

After paying the market price for all products the company is paying a dividend of 8 per cent. and have given a bonus of one per cent. per pound on every pound of butter fat received, and one cent on each dozen eggs, a special bonus to milk ship-

pers whose stables are clean and sanitary, and a special bonus to herds that pass the tubercular test; these bonuses amount to \$30,000. In 1919 they will erect new cold storage and creamery plants in several places. The total profits last year, after allowing \$30,000 for depreciation on their twenty creameries, was over \$75,000.

We have asked the Western Ontario Dairymen's Association to appoint a representative to co-operate with us, and we have had the advice and co-operation of Mr. Donaldson and Mr. Herns. We held a meeting at Toronto two months ago to look into Ontario conditions. There is no idea of making a big splash at the start and taking in a large number of factories. If a start is made, it will be in a small way, possibly in Eastern Ontario, because down there conditions seem more favorable than in other parts of the province. In one district in Eastern Ontario there are 145 factories co-operatively owned by the farmers, and they are about the best factories in that part of the province. I think we will have to act with the greatest care, investigations will have to be carried a little further, and then we will be ready to come back to your Directors and have their co-operation.

ADDRESSES OF WELCOME.

C. R. SOMERVILLE, Mayor of London, on behalf of the Municipal Council and the citizens, extended a most hearty welcome to those in attendance, and expressed the hope that they would make a return visit at an early date.

These are days in which we ought to be proud to live. These are the days in which great things are going to be done in our country. These are the days in which the great products of our country must be developed to the fullest extent. We have perhaps the richest country on the face of the earth, and Ontario is the best province in the Dominion. There has been no time in the history of the world when the things that we are producing from the ground were more required than they are to-day. There is no doubt that the things which you gentlemen are producing and which you are trying to improve, are required to-day more than ever before. We have been through strenuous days during the past four and a half years. The boys from the farm and the boys from the city and the boys from every walk of life who have been away from us from two to four years, have to be put back into similar occupations to those which they occupied before they went away, or some other occupation that will give them a livelihood, and I am sure that they will find plenty of employment in this great country.

What we produce from the land and from the mines is clear gain outside of the cost of production, but of what we produce in our factories a great deal has to go for the cost of the material or rough produce from which our goods are manufactured, and the gain or profit is what we have after paying for the raw product and the cost of manufacture.

If we are going to be able to pay off the great war debt that we have contracted, we will have to enlarge our population on the land. I am sure there is no person here who would have thought at the beginning of the war that Canada could have done what she has been able to accomplish during the past four years. When we consider what our boys have done at the front and the sacrifices they have made, there is nothing too great for us to do in memory of what they did to save civilization and make this world safe for democracy. Our boys have done greater things than the most scientific soldiers the world has ever seen. Our boys have been up against soldiers trained from their youth up, yet our boys after a few months' train-

ing were able to accomplish more and to drive back these professional soldiers. The Germans thought our army would not be able to compete with them in the field. It may not have been on account of their training that our boys accomplished so much, it may have been on account of the spirit they possessed: that spirit which we have in this country of wide and broad and noble things and plenty of elbow room, which gave our boys an individuality which no Hun or Austrian possessed. Our boys were able to take care of themselves individually, collectively, or in any position they found themselves, because of the education they received in being brought up in this country. We have a name now in the world second to none.

London is a large city and one of the educational points of the Dominion. It is also noted for its manufacturing establishments, for its fine parks, its good streets and also for the beauty of its situation on the forks of the River Thames. I do not know of any place more happily situated and I feel sure that in the near future we will have a population of one hundred thousand. We will be very glad to have you come again, and we will do all we can do for you at that time.

GEO. M. REID, President of the London Chamber of Commerce, extended to those in attendance the freedom of the Chamber of Commerce. Our rooms are in the Tecumseh House, and we will be very glad to have any of you call there and meet Mr. Gordon Phillips our very energetic secretary. He will be able to tell you all the advantages of London if you come here to live or start business. Our Chamber of Commerce has about a thousand members and we should be very glad to have any of you become members. Our object is to do good to the community and we are glad to act shoulder to shoulder with the dairymen of this district.

ADDRESS.

GEO. S. HENRY, MINISTER OF AGRICULTURE FOR THE PROVINCE OF
ONTARIO, TORONTO.

Before saying a few words to you from the agricultural standpoint I want to express my pleasure at being here, and of having the opportunity of meeting the dairymen of Western Ontario, studying their needs, finding out their aspirations, and seeing if there is not some way in which the Department of Agriculture might be of even more service to you than in the past.

I would like to throw out a hint to the President of the Chamber of Commerce. The City of Hamilton became ambitious a year or so ago and established an agricultural section in connection with their Board of Trade. I was present a week or so ago at their annual luncheon, and was more than surprised to see the enthusiasm that was displayed in the gathering and the unanimity of purpose that was shown between those living at the outskirts and the surrounding country and the people of the city itself. I am looking in the near future to having agricultural sections in connection with the various Boards of Trade in the cities throughout the province. I think we cannot do anything better than get as close together in trade and in the discussion of matters of trade as possible. There is nothing that will give us such confidence in ourselves as farmers and nothing that will give the citizens confidence in the farmers as getting close together. I rather feel that that is one of the results that is going to come to us out of this great war. If there is one thing that has stood out more than any other it is that in our patriotic efforts we acted

as citizens, irrespective of whether we lived in the city, the town, or the township. We all worked with one purpose, and while there was some little feeling that one section was not doing as much as another, yet I am satisfied if a record of performance along certain lines were taken, no one could hold up their hands and say they had excelled. I cannot be of service to the people of this province unless I have the views of the average man and the regular organizations, and that is why I attend meetings of this kind. I look upon myself as a trustee of a great industry, that is recognized in this province as of paramount importance, and while I may throw out some suggestion that may be of value to you, yet I feel that I will get from you as an association, suggestions of the greatest importance to the industry.

I have a very particular interest in dairying, because living as I do close to a large city, we are more or less thrown into one industry, that of supplying milk. While our problems are not your problems in the entire, very many of the problems in dairying are common, no matter what particular line you follow. Dairying has developed of late years to such an extent that it is almost impossible for anyone to become efficient in all its various lines. Some one has said "Wait till we get back to normal, back to the conditions that we had before the war." To my mind we are never going to get back to the conditions as we had them before the war. We are entirely a new people. Having passed through the furnace of suffering and adversity of the past four and a half years, it is impossible for us as a young nation, as part of the Empire, and also as part of the Great Entente that has played such a part in the last four and a half years, to get back to the conditions that maintained before that struggle. That is particularly so with those who have their loved ones overseas. We have all developed in ourselves a desire to serve our neighbor and to be more interested in the various developments of our country. Up to the time of the war, we thought that the world for ourselves was within ourselves, and that we lived practically independent of one another. These things have all passed and we have come to realize that we have a duty to our neighbors, and we have also come to realize that we did not appreciate ourselves aright. Reading recently a little book called "Be Good to Yourself," I was thinking of the people in Canada, and I am afraid that we do not think enough of ourselves. Perhaps that is an Anglo-Saxon trait bred in the British family. Our American cousins tell the people in the old land that they do not know how to advertize, that they do not blow their own horn, and possibly that has been true in Canada. I think we are inclined to sit back and not have confidence in our own ability to move forward and do great things. That to my mind is one of the things we are going to reap out of the war. If any one had told us four and a half years ago what we were going to do in the next fifty months, who would have believed them? We have developed in ourselves a capacity for doing things that we never dreamed of before. If we will only have confidence one in another and decide to make the very best of our opportunities we will make greater advancement in the future than ever before. I think I am safe in saying that in all human probability the present generation will not have to fight a similar conflict. We are depending on our representatives at the Peace Conference to see that the enemy is placed in such a position that he will, for a generation or two, be unable to take the step he did in August 1914. We have every confidence in our leaders, we feel satisfied that they will bring out of the conference, results that will be of immense importance to ourselves as a people. We were living in a false paradise, we thought we were not going to have any more war. When the late Lord Roberts told us there was going to be a war within a few years we could not believe him. We see now how well he could read the signs of the times. At the same time we feel that the struggle that we have passed through is going to bring

results and we are going to be able to peaceably develop our people, and that mankind generally is going to reap a big reward for the struggle of the last four and a half years.

Another result we have out of the war is the prominence of farming. We had grown into the opinion as a people that farming was more or less of a side issue, and that the matter of sufficient to eat and clothe ourselves was of minor importance. The war has shown us that the basic industry of agriculture is of paramount importance, and we realize what a big part it plays in our National life. We all realize how much is depending on agricultural progress and development in the next few years. Someone has said "The farmers are going to pay the cost of the war." In a certain sense that is largely true, but not that it will be a burden on the farmers. It is a privilege that the farmer has to be so situated that he will be able to take on his broad shoulders the responsibility of paying the debt of the war. I am looking forward, in the immediate future, to the time when the farmer will get a better reward for his labor than he has done in the last few years. I think he is justified in it, and I think the state would be justified in encouraging it and assisting in so far as the Government can assist. For the development of agriculture generally it is essential that the reward for the efforts put forth on the farm must be commensurate with the labor. For that reason there must be ample reward to encourage the development and enable us to get our skilled men to stay in the industry and not drift into the larger centres. We have come to a rather serious time in our history, we do not know what is going to take place. We as a people think prices are going to drop. Of course they will drop, they will go down in stages. Wages cannot go down until living goes down. One thing that stands out more than another, as far as the men on the farm are concerned, is that live stock as an industry will stand out prominently, and there will be greater rewards in the production of live stock in a comparative sense than in any other line of agricultural development. We have almost the promise of lower prices for feed in the immediate future and at the same time comparatively high prices for our product. For that reason I feel confident in telling the farmers to hang on to their stock, and not become nervous of conditions. I am told that thousands of sows were sent to slaughter houses at Toronto when the armistice was signed because there was a feeling among many men that there was going to be no profit in feeding live stock. There is no reason for us as farmers to be so nervous. Food stuffs for the moment seem to be congested in the ports of the old land. It is a matter of transportation and distribution. When we think of the millions of men who have been engaged in destruction of one another and of the millions who have been engaged in the manufacture of munitions for the past four years, it is not possible for us to have kept up with the demands of the human race. Until these things right themselves there is going to be an abnormal demand, and for that reason I am rather inclined to speak strongly to the men on the farms of Ontario to develop, along sound lines, their live stock.

The crop of this year is going to play a very large part in the adjustment of the cereal crops of the world. The same thing will not be true of live stock; you cannot increase the live stock of the world in a season. We are told that after the Civil War in the United States it was fifteen or twenty years before they arrived at normal conditions as far as live stock was concerned. If that is true of a country where a war of a minor character was carried on for four years, how much truer will it be under the conditions that will follow the present war?

Some of us have been inclined to be critical of the restrictions of the Food Board. I speak to you now as an individual citizen, not having had anything to do

with these restrictions, but I feel that it is incumbent on me to say that there were no restrictions placed on us that were not absolutely necessary. Some people were inclined to talk and say that somebody seemed to be sitting up at nights thinking of what new restrictions they could put on to bother the people. I think if the truth were known some people sat up at nights trying to devise ways and means so that there would not be restrictions on these things. It will not be long before we are back to our natural conditions. We must appreciate that we here in Canada have suffered practically nothing compared to what they did in the old land. There they could only have meat on certain days of the week. We did not get as much of some things as we would have liked and possibly got too much of some things that we did not like. We should feel thankful that we got through with such small inconvenience.

We have come through it all victorious. There is considerable unrest among laboring circles in some countries. We are sometimes told that there is considerable unrest within our own borders. I am satisfied that the labor leaders are sound sensible men, and that they are carrying us along under these trying conditions and that with a little patience we are going to get back into our natural stride. There is no reason why labor and other interests should get antagonistic. There is no reason why labor in this country should have any fault to find. How different are things in Europe with famine staring them in the face. In Russia and Germany they have never developed in themselves any capacity for government by the people. Self-government is developed in this Dominion as possibly it is not developed anywhere else in the world. We have free and broad institutions that have enabled us to develop, and that has been shown by our boys at the front. Our boys have shown great capacity to take care of themselves and to work in unison one with another. So much so has that been the case that we have been told in a recent despatch by Sir Douglas Haig that when an offensive was planned the Canadians were placed in the front line trenches and when the Germans at Amiens saw that the boys from Canada were placed in there, they immediately massed reserves behind their lines in Flanders anticipating an offensive in Flanders, and thereby saved the day for us in Amiens. For that reason I look with confidence on our people having the ability to take care of any difficulty that may arise. If with steady, staunch hearts we stand together we will come through triumphantly. For that reason I want to ask the men on the farms not to go off into a camp by themselves and say that we have particular interests that must be guarded and that these interests are paramount and we have no interests as citizens. Farmers have every reason to organize as much as any other industry in the country and I look for a great deal of development along that particular line. But don't forget that you are citizens and that you have a right to take care of your neighbor and that you are interested in the consumer in the city and that the closer you get in touch with him the better will be your results. Along this particular line I am anxious to see co-operation developed. I think there is nothing as promising as the organization of farmers clubs. The farmer then organizes to buy so that he can get his purchases from as close to the manufacturer as possible, reducing thereby the actual cost to him. Then as he develops confidence in himself in buying let him develop on the other hand the marketing of his products. We have developed the capacity to produce on the farm and to manufacture our goods into cheese and butter, and we have not spent very much time in developing the very important problem of marketing these products, and we have wondered why there was such a spread between the prices we received and what the consumer paid. A year or two ago a farmer sold a barrel

of apples and put on a card inside the barrel, "I received one dollar for this barrel of apples, I would like the consumer to write me, giving his address, and telling what he pays for this barrel of apples." It was found that the consumer paid between four and five dollars for that barrel of apples. Then there was considerable inquiry and justly so. Organize together so that you can get as close to the consumer as possible with your products. In that way you will increase the consumption, because naturally the product will be cheaper, and at the same time you will get a greater price. It is along that line that I think most of the development of the future will be. Therefore I would say organize to buy your equipment and organize to sell your product. We are doing what we can to help you and guide you along the various lines. Only yesterday we were down to Ottawa trying to interest the Dominion Government in a terminal elevator for the province. If we secure what we want you will have a place where you can ship a car of grain and have it graded and weighed and cleaned. You would get a warehouse receipt on which the Bank would advance you money.

Let us not forget that we are citizens, and that we as a people will never rise to our full opportunity unless we all work together. I never can forget that Canada of all the countries in the world is the least developed. It has always appeared to me that Providence is using this country for some purpose, and that in this Canada of ours there is to be a development along the line of democracy, and we will not be doing the work that has been planned for us unless we, as citizens, irrespective of our particular calling stand together.

We are going to see a great immigration to this country in the next few years, after our boys return from the front and shipping becomes normal. You cannot tell me that the Britisher is not coming to Canada. The statement is made that the man power of Britain is as great today as it was before the war. In spite of all the losses in men who were buried in France and Flanders, the man power of Britain is as great to-day as it was in 1914. It is the normal condition in the Old Land that there must be a certain emigration annually, and emigration has been shut off. As soon as restrictions are removed the men and women of Great Britain are coming out to Canada, the country that mustered five hundred thousand men and sent them across the seas. The greatest flotilla, in the early days, that had ever been known to cross the water, and the people of the Old Land are coming out to see the people who could do great things. I understand that the Immigration Department at Ottawa is laying very comprehensive plans looking towards the bringing from the Old Land as many people as desire to come. Everything is going to be done to develop this country, and we are going to go forward with leaps and bounds.

In going around through the various organizations, and particularly the two organizations I have had the pleasure of meeting this week and last week, I am struck with the possibilities of dairying. We were told this afternoon by Prof. Leitch that the land is practically settled in Ontario, and that we must develop along certain lines, but he did not tell us that we could not increase our dairy population, and he did not tell us that we have no markets for our products. I noticed in one of the newspapers a year or two ago that the butter export from the Dominion of Canada was only two per cent: surely we are able to produce more than that. I appeal to dairymen generally to see if they cannot branch out and do more in 1919 than they have ever done in any previous year. I might talk to you along these lines for another hour, but will conclude by saying that this exhibition here and the one at Belleville is only an example of what we can do if we will get together and plan to develop and strike out on broader and bigger lines than ever before. I thank you.

DAIRY AWARDS, WINTER DAIRY EXHIBITION, LONDON, 1919.

CLASS 1.

Section 1, September White Cheese.

	Score		Score
1. H. E. Donnelly, Straffordville.	98.90	6. W. E. Brown, Brussels	97.67
2. Martin Calder, Sebringville...	98.67	*7. C. J. Donnelly, Lambeth	97.62
3. Jos. Skelton, Kintore	98.25	*8. J. T. Donnelly, St. Thomas..	97.62
4. J. F. Koch, Palmerston	98.24	9. L. H. Schneider, Gads Hill ...	97.49
5. R. L. Butler, Springford	97.77	* Tie, money divided.	

Section 2, September Colored Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	98.37	6. A. D. Riddell, Innerkip	96.99
2. H. E. Donnelly, Straffordville.	97.75	7. H. Maddock, St. Thomas	96.87
3. J. T. Donnelly, St. Thomas ...	97.50	8. H. E. Carter, Stratford	96.77
4. O. W. Justus, Listowel	97.24	9. B. A. Holland, Ingersoll	96.36
5. W. E. Brown, Brussels	97.00		

CLASS 2.

Section 1, October White Cheese.

	Score		Score
1. H. E. Donnelly, Straffordville.	98.74	6. H. J. Neeb, Tavistock	97.37
2. J. T. Donnelly, St. Thomas ..	97.99	7. H. E. Carter, Stratford	97.12
3. C. J. Donnelly, Lambeth	97.62	8. W. E. Brown, Brussels	96.87
4. J. F. Koch, Palmerston	97.59	9. B. F. Howes, West Monkton..	96.80
5. Jas. L. Thompson, Harriston..	97.49		

Section 2, October Colored Cheese.

	Score		Score
1. J. T. Donnelly, St. Thomas ..	98.12	6. Martin Calder, Stratford	97.12
2. H. E. Donnelly, Straffordville.	97.62	7. H. J. Neeb, Tavistock	96.97
3. C. J. Donnelly, Lambeth	97.55	8. H. E. Carter, Stratford	96.87
4. O. W. Justus, Listowel	97.50	9. C. W. Bell, Kincardine	96.75
5. J. L. Thompson, Harriston ..	97.17		

CLASS 3.

Section 1, 56-lb. Box Butter.*

	Score		Score
1. C. A. Davis, Guelph	97.00	6. Jas. H. Ross, Exeter	94.35
2. J. R. Almont, Silverdale	95.70	7. E. M. Johnston, London	94.30
3. Silverwoods, Ltd., London ...	95.55	8. Whyte Packing Co., Brockville	94.25
4. W. G. Medd, Woodham	94.65	9. W. A. Coleman, Ayton	94.05
5. Cornwall City Dairy, Cornwall	94.60		

Section 2, 1-lb. Prints.

	Score		Score
1. C. A. Davis, Guelph	95.90	5. Silverwoods, Ltd., London ...	94.20
2. J. R. Almont, Silverdale	95.85	6. Whyte Packing Co., Brockville	93.75
3. W. G. Medd, Woodham	94.50	7. W. A. Coleman, Ayton	93.55
4. Jas. E. Wilson, Forest	94.35	8. E. M. Johnston, London	93.45

CLASS 4.

Section 1, 56-lb. Box October Butter.

	Score		Score
1. E. M. Johnston, London	95.65	6. Whyte Packing Co., Brockville	93.45
2. W. G. Medd, Woodham	95.15	7. Jno. Main, Watford	93.40
3. C. A. Davis, Guelph	94.90	8. Belleville Creamery Co., Ban-	
4. Cornwall City Dairy, Cornwall	94.55	croft	92.00
5. Jas. H. Ross, Exeter	94.30	9. W. MacWaddell, Strathroy	91.95

Section 2, 1½-lb. Box June Butter.

	Score		Score
1. O. A. C., Guelph	95.55	6. J. R. Almont, Silverdale	93.05
2. W. G. Medd, Woodham	94.10	7. Whyte Packing Co., Brockville ..	92.90
3. Jas. E. Wilson, Forest	93.50	8. William Webb, St. Thomas ..	92.70
4. Lea Marshall, Pt. Dover	93.30	9. G. W. Phillips, Sarnia	92.65
5. Jas. H. Ross, Exeter	93.10		

CLASS 5.

Section 1, Three Stilton Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	98.74	4. Peter Callan, Woodstock	96.12
2. H. E. Donnelly, Straffordville.	97.25	5. H. Maddock, St. Thomas	95.75
3. Wm. Laughlin, Thamesford...	96.50	6. Lea A. Wallis, St. Thomas ..	95.74

Section 2, Two Flat Cheese.

	Score		Score
1. C. J. Donnelly, Lambeth	97.37	5. J. E. Stedelbauer, Vienna	
2. D. C. Floto, Corinth	97.12	(won on flavor)	96.62
3. J. F. Koch, Palmerston (won		6. Peter Callan, Woodstock	96.62
on flavor)	96.87	7. H. J. Neeb, Tavistock	96.39
4. M. Calder, Stratford	96.87	8. J. T. Donnelly, St. Thomas ..	96.24

SPECIAL PRIZES.

By the Heller & Merz Co., 505 Hudson St., New York—C. Richardson & Co., St. Mary's, Ont., Canadian Agents for Alderney Butter Color: \$10.00 in cash—To the Buttermaker securing the highest score on butter exhibited in Class III, colored with Alderney Butter Color.—C. A. Davis, Guelph.

\$5.00 in cash—To the Buttermaker securing the second highest score on butter exhibited in Class III, colored with Alderney Butter Color.—J. R. Almont, Silverdale.

By C. Richardson & Co., St. Mary's: \$10.00 in cash—To the Buttermaker securing the highest score on butter exhibited in Class IV, Sec. I, colored with Alderney Butter Color.—E. M. Johnston, London.

\$5.00 in cash—To the Buttermaker securing the second highest score on butter exhibited in Class IV, Sec. I, colored with Alderney Butter Color.—W. G. Medd, Woodham.

NOTE.—The winners of the Heller & Merz Co., and C. Richardson & Co.'s Special Prizes will, if required, be expected to take an affidavit stating that they have been continuous users of Alderney Butter Color *during the past twelve months*.

By the R. M. Ballantyne, Limited, Stratford, Ont., for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Rennet Extract and Color: One Four-bottle Facile Babcock Milk Tester—To the Cheesemaker securing the highest score on September White Cheese, Class I, Sec. I.—H. E. Donnelly, Straffordville.

One case of Hansen's Cheese Color—To the Cheesemaker securing the highest score on October Colored Cheese, Class II, Sec. 2.—J. T. Donnelly, R.R. 4, St. Thomas.

By Geo. E. Booth, Ingersoll, for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Rennet Extract and Color: One case of Hansen's Cheese Color—To the Cheesemaker securing the highest score on September Colored Cheese, Class I, Sec. 2.—C. J. Donnelly, R.R. 3, Lambeth.

One Four-bottle Facile Babcock Milk Tester—To the Cheesemaker securing the highest score on October White Cheese, Class II, Sec. I.—H. E. Donnelly, Straffordville.

NOTE.—All cheese competing for the special prizes offered by the R. M. Ballantyne, Limited, and Geo. E. Booth, must be made with Hansen's Rennet Extract and Color. No special cheese required.

By the J. B. Ford Co., Wyandotte, Mich., manufacturers of Wyandotte Dairymen's Cleaner and Cleanser: One finest quality Gentleman's Silk Umbrella—To the Cheesemaker having the best finished and most stylish-looking cheese on exhibition in Class I.—H. E. Donnelly, Straffordville.

One finest quality Gentleman's Silk Umbrella—To the Cheesemaker having the best-finished and most stylish-looking cheese on exhibition in Class 2.—C. J. Donnelly, R.R. 3, Lambeth.

One finest quality Gentleman's Silk Umbrella—To the Buttermaker having the neatest and most attractive exhibit of butter in Class 3.—W. G. Medd, Woodham.

One finest quality Gentleman's Silk Umbrella—To the Buttermaker having the neatest and most attractive exhibit of butter in Class 4, Sec. I.—Belleville Creamery Co., Bancroft.

NOTE.—The winners of the special prizes offered by the J. B. Ford Co. must be regular and exclusive users of Wyandotte Dairymen's Cleaner and Cleanser. No special cheese or butter required.

By the Marschall Dairy Laboratory, Madison, Wis., manufacturer of Marschal's Rennet Extract and Color; Maclaren Imperial Cheese Co., Ltd., Woodstock, Ont., and DeLaval Co., Limited, Peterboro, Ont., and Montreal, P.Q., Canadian Agents: Gold Waltham Watch, value \$25.00, 17-Jewelled Movement, 25-Year Guaranteed Case—To the Cheesemaker securing the highest score on Cheese (except Stiltons) made with Marschall's Rennet.—R. L. Butler, Springfield.

NOTE.—No special cheese required.

By Parke, Davis & Co., Walkerville, Ont.: One case containing two gallons each of Curdalac and Germtox—To the Cheesemaker securing the highest score on September White Cheese made with Curdalac, Class I, Sec. I.—No entry.

One case containing two gallons each of Curdalac and Germtox—To the Cheesemaker securing the highest score on September Colored Cheese made with Curdalac, Class I, Sec. II.—No entry.

One case containing two gallons each of Curdalac and Germtox—To the Cheesemaker securing the highest score on Flat Cheese made with Curdalac, Class V, Sec. II.—C. J. Donnelly, R.R. 3, Lambeth.

NOTE.—No special cheese required.

By the Western Salt Co., Limited, Courtright, Ont., N. A. Leach, Manager: One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on September White Cheese, Class I, Sec. I.—H. E. Donnelly, Straffordville.

One barrel Purity Cheese Salt—To the Cheesemaker securing the highest score on October Colored Cheese, Class II, Sec. II.—J. T. Donnelly, R.R. 4, St. Thomas.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on fifty-six pound box Creamery Butter, Class III or IV, Sec. I.—C. A. Davis, Guelph.

One barrel Purity Dairy Salt—To the Buttermaker securing the highest score on twenty one-pound Creamery Prints, Class III, Sec. II.—C. A. Davis, Guelph.

NOTE.—No special butter or cheese required.

By the DeLaval Company, Limited, Peterborough, Canada: One Cheese Trier—To the Cheesemaker securing the highest score on September or October White Cheese, Class I, Sec. I, or Class II, Sec. I.—H. E. Donnelly, Straffordville.

One Cheese Trier—To the Cheesemaker securing the highest score on September or October Colored Cheese, Class I, Sec. II, or Class II, Sec. II.—C. J. Donnelly, R.R. 3, Lambeth.

One Cheese Trier—To the Cheesemaker securing the highest score on Cheese exhibited in Class I or Class II.—H. E. Donnelly, Straffordville.

One One-Pound Butter Printer—To the Buttermaker securing the highest score on butter exhibited in Class III, Sec. II.—C. A. Davis, Guelph.

One Butter Trier—To the Buttermaker securing the highest score on butter exhibited in Class IV, Sec. I.—E. M. Johnston, London.

NOTE.—No special cheese or butter required.

By the Sharples Separator Co., Toronto: \$10.00 in cash—To the Cheesemaker securing the highest score on September White Cheese, Class I, Sec. I, or October White Cheese, Class II, Sec. I.—H. E. Donnelly, Straffordville.

NOTE.—No special cheese required.

By W. A. Drummond & Co., Toronto: \$10.00 in cash—To the Buttermakers securing the highest and second-highest score on 14-lb. box June Butter, Class IV, Sec. II.—1st, \$6.00; 2nd, \$4.00.—O.A.C., Guelph., and W. G. Medd, Woodham.

By the Imperial Bank of Canada: A Silver Cup—To become the property of the Cheesemaker securing the highest total score, three times, or twice in succession, on two cheese; one cheese either white or colored, exhibited in Class I, and one cheese either white or colored, exhibited in Class II. In awarding this cup the scores of the two cheese securing the highest score in Classes I and II (belonging to the same exhibitor) will be added. In case of a tie, settlement is to be left with the judges. Won in 1910 by J. E. Stedelbauer; won in 1911 by R. A. Thompson; won in 1912 by D. Menzies; won

in 1913 by R. E. Hastings; won in 1914 by Mrs. O. Cuckow; won in 1915 by J. K. Brown; won in 1916 by P. Callan; won in 1917 by H. W. Hamilton; won in 1918 by C. J. Donnelly.—H. E. Donnelly, Straffordville.

NOTE.—No special cheese required.

By the Toronto Produce Exchange: A Silver Shield—To become the property of the exhibitor of Butter (except 1-lb. prints and 14-lb. boxes) at the Winter Dairy Exhibition who shall receive the highest score three times or twice in succession. Won 1917 by R. A. Dennis; won 1918 by J. R. Almont.—C. A. Davis, Guelph.

By the Slawson Co., Ingersoll, for D. H. Burrell & Co., Little Falls, N.Y., manufacturers of Chr. Hansen's Extract and Color—To the Cheesemaker securing the highest score on October White Cheese, Class II, Sec. I: one case of Hansen's Cheese Color.—H. E. Donnelly, Straffordville.

To the Cheesemaker securing the highest score on October Colored Cheese, Class II, Sec. II: one Four-bottle Facile Babcock Milk Tester.—J. T. Donnelly, R.R. 4, St. Thomas.

NOTE.—Cheese without a bandage shall be considered unfinished, and shall be scored off for finish accordingly.

Cheese on exhibition may be paraffined.

All one-pound print butter on exhibition must be wrapped in plain wrappers.

All October butter must be sent to London Cold Storage by November 11th.

All June 14-lb. box butter must be sent to Toronto Municipal Abattoir Cold Storage by July 10th.

REPORT OF BUTTER GRADER, 1918.

JOHN H. SCOTT, TORONTO.

The following is a report of the Ontario Butter Grading Station for the year 1918.

The Dairy Branch of the Department of Agriculture carried on the work of grading butter in 1918 along about the same lines as in 1917. A few creameries continued sending samples to the grading station all winter but most of them commenced sending in May or a little later.

Thirty-seven creameries, including all that were in last year, entered for grading in 1918. Six did not send any samples, three or four others sent only a very few samples. The scarcity of labor was given as the reason why they did not send more. Thirty-one creameries were, therefore, graded more or less regularly throughout the season.

The total number of samples graded was 3,854, of this number 3,019 or 78 per cent. scored 1st grade or 92 points and over. This is a slightly less percentage than in 1917, although these figures given cannot be taken as a comparison from one year to another for various reasons.

Four of the creameries graded had less than 5 per cent. seconds, five had from 5 to 10 per cent., six had 10 to 25 per cent., nine from 25 to 50 per cent., four from 50 to 75 per cent. and three had over 75 per cent. These figures cannot be taken literally as representing the quality of butter made by these creameries, but simply means the butter graded for the creameries in the grading service. Some of them sent samples from every churning throughout the whole season. Some graded only what was packed in solids for storage purposes, and some graded only butter made from cream graded out at the creamery as first grade cream.

Some very interesting results were noticed where cream was graded at the creamery. The cream graded as second grade by the creamery invariably made

butter that was second grade by the butter grader. Nearly all the creameries that had over 50 per cent. seconds did not send samples very long. They evidently preferred to go on in the old way rather than have the defects of their butter advertised on a score card.

As I see the butter situation in Ontario to-day, after three years of close contact with both ends of the trade, I feel that there is need for improvement. Evidently some of the creamery men do not view it in the same light as was evidenced by the programme of the Canadian Creamery Association Meeting recently held in Toronto, when not five minutes of the time was spent in discussing of how the quality of butter can be improved. If market conditions of the past few years are to continue, then I can see a reason for not paying more attention to quality, but if we are to expect a surplus of butter for export, then Ontario cannot afford to go along in the old way; but will be compelled to improve the quality. The reports from Montreal, of butter received from Ontario compared with some other provinces, during the commandeering period, are not encouraging to say the least. A number of our creameries are turning out fine butter and should be given every credit for it, but there are others that must improve in quality or eventually suffer serious losses.

There are three outstanding defects in Ontario butter:

The first, of course, is flavor, and I think that I am safe in saying that 95 per cent. of the defects in flavor are due to cream being held too long at too high temperature, developing too much acidity and allowing yeasty fermentations to take place. Inquiries from creameries as to conditions of cream, from which samples of clean mild flavor butter was made, reveals the fact almost invariably that the cream used was comparatively sweet. This is no new doctrine, it has been endorsed by good dairymen for many years, why discuss it.

The second outstanding defect I would mention is the prevalence of the coarse, loose free moisture type of butter. We cannot overestimate the importance of this defect. The loss in weight and the soft appearance of this type of butter cannot be ignored. The moisture should at least be incorporated until there is no possibility of leakage after being packed. Anything short of this will not be satisfactory to the distributing end of the trade. Butter incorporation of moisture will also assist in clearing or evening the color of butter.

Then there is the salting. On the whole I think there was an improvement in salting during the past season, but there is still a very wide variation in the quantity of salt used. At the Dairy Conference held in Ottawa recently, 3 per cent. was agreed upon as the maximum amount of salt butter should contain. The very best trade requires not more than 2 per cent.

Regarding the success or failure of the butter grading service in Ontario, I leave others to judge. The support it had received from those who should have been and it was thought were most interested in the proposition, has to say the least, been disappointing. Some of the best creameries that would have added strength to the work, had they come in, did not enter for the grading service. Possibly it would not have been of much commercial value to them but the moral effect would have been very helpful to the grading service. The attitude of the dealer to grading has been disappointing. In my judgment, the initiative must come from the dealer. We may keep on grading butter just as long as we like, but until the butter dealer loses fear of his competitor, grading will not bring the results it otherwise would. We must have co-operation between all concerned, but I believe the beginning must come from the marketing end.

There is now no doubt in the mind of anyone of the value of pasteurization for keeping butter. Yet creamery salesmen tell me that they are rarely asked by the dealers whether butter is pasteurized or not. It costs money to pasteurize, estimated at one half cent per pound of butter at the least calculation, therefore, pasteurized butter must bring a premium at least equal to cost of the operation. It is worth more.

Not more than 20 per cent. of the creameries in Ontario pasteurize, therefore, I think the trade generally needs to lay greater stress upon this point of proper pasteurization.

While we are not able to report any great accomplishment for the butter grading service, there is this to say, however, with the experience of the past two years, we have worked out many little details, and have been able to demonstrate the fact that grading from sample boxes is practicable. We have also been able to work out systems by which the work of grading can be carried on, we think, successfully.

We will be glad to have the assistance of all interested, by their suggestions for any improvements that is thought would be helpful.

I. W. STEINHOFF: I have heard Mr. Scott's address, and there are some things in connection with it that I would like to say a few words on. I refer more particularly to the grading system set on foot two years ago. I do not wonder that Mr. Scott feels a little disappointed at the slow progress that has been made. I think the time has come when we should do one thing or the other. If we continue with a small number of creameries we are going to go back. We have talked about this matter for quite a while and we must now do something. We will soon be exporting butter to the United States and Europe, the market price in the United States is much above ours, therefore I think it is important that we should get into line and grade all the butter. The Toronto dealers realize that we have not made any success in this matter. I have worked ever since I went to Toronto to try to bring the dealers and producers together, and when we get them closer together we will be able to make greater advancement. I would suggest that this convention appoint a committee to treat with the dealers. I am sure the dealers are prepared to buy butter on the graded basis, and to give their strongest possible support to that system, but they will not do it so long as such a small proportion of the butter is graded. If you will appoint a committee I am sure the merchants will be only too glad to meet that committee.

MR. FRANK HERNS: I do not think there will be any difficulty in appointing the committee. There are always men on the directorate who are willing to take that matter up. The Association has done all that it could possibly do to get this matter going on a proper basis. I would like to say that during the whole three years that I have worked in connection with this grading problem, Mr. Steinhoff has given me a good deal of help, and he has had a good influence on the dealers in Toronto in forming their opinion in this matter of grading. He has helped us a good deal, and we also appreciate the help we have received from the other dealers. I can understand that during the past two years, owing to trade conditions, it has been very difficult for the dealers to carry out their first intentions. However there will be no difficulty in getting a committee, and I hope we will be able to secure good results.

REPORT OF CHIEF DAIRY INSTRUCTOR AND SANITARY INSPECTOR FOR WESTERN ONTARIO, 1918.

FRANK HERNS, LONDON.

I beg to submit my twelfth annual report. The work of dairy instruction was carried on along practically the same lines as in previous years. The instructors attended the Dairy Conference, held at O. A. C., Guelph in April. A meeting of the instructors was held at London, in June, at which time plans for the work of the season were completed.

CHEESE INSTRUCTION REPORT.

CHEESE FACTORIES. One hundred and thirty-seven factories received 351 full day visits and 379 call visits by the five cheese instructors.

MILK SUPPLY. Nine thousand one hundred and three patrons supplied milk to the factories. The estimated average per cent. fat in the milk for the season was 3.35 (.01 per cent. greater than 1917). The estimated average loss of fat in the whey for the season was .24 per cent. (.01 per cent. less than 1917). One hundred and twenty-six patrons were visited.

QUANTITY OF CHEESE, 1917. There were 25,255,941 pounds of cheese manufactured in Western Ontario in 1917, which is 3,950,349 pounds less than was manufactured in 1916.

AVERAGE YIELD AND PRICE. The average number of pounds of milk required to make one pound of cheese was in 1917, 11.34. The average price per pound of cheese was in 1917, \$0.21.52. This is slightly less pounds of milk to make one pound of cheese and is \$0.0332 greater average price than in 1916.

JUNE OUTPUT, 1918. The question came up at the end of June as to the quantity of cheese made in Western Ontario during that month. At my request the instructors collected information on this point, and it was found that the total output amounted to 3,692,924 pounds. This is 46,161 boxes of 80 pounds each. Using the month of June, 1918 for comparison, we shall in future secure at the earliest possible date the June output of the current year, which should give, early in the season, a fair estimate of the likely increase or decrease of production.

QUALITY OF CHEESE. With the exception of about two weeks in July the quality of the cheese was well maintained. The factories were in many cases run under difficulties owing to the scarcity of labor, and during periods of extremely warm weather it was more difficult than usual to handle the situation. It is felt that with the many handicaps under which milk producers and factory men had to labor, that on the whole the general quality of the cheese was excellent. During no previous season was the milk delivered at the factory in as good condition as last season.

THE USE OF RENNET. A greater number of factories than in 1917 used rennet during the past season. This was not only due to a more liberal supply, but to the fact that substitutes have never been as popular as genuine rennet. Seventy-nine factories used nothing but rennet, while the balance used a mixture of rennet and rennet substitutes.

MILK SEDIMENT TEST. Two thousand four hundred and ninety sediment tests were made, and the special cards to which "discs" were attached covering

DAIRY INSTRUCTION WORK, 1918.—CHEESE.

Instructor and Group.	Factories visited.	No. of patrons.	No. of full day visits.	No. of call visits.	No. of patrons visited.	No. of curd tests.	No. of lactometer tests.	No. of Babcock tests for adulteration.	No. of sediment tests.	Factories skimming whey.	Factories paying by test.	Factories having ice cool curing room.	Factories pasteurizing whey.	Whey fed at factory.	Average per cent. fat in milk for season.	Average per cent. fat lost in whey for season.	Estimated expenditure for improvements.
LISTOWEL—																	
R. A. Thompson	29	2,332	71	92	13	0	5,900	75	150	8	9	3	16	1	3.37	.23	1,300 00
STRATFORD—																	
G. M. McKenzie.....	29	2,461	82	105	30	9	6,738	237	52	6	10	8	17	4	3.40	.227	12,350 00
INGERSOLL & WOODSTOCK—																	
A. E. Gracey	26	1,411	75	118	20	33	2,531	675	442	7	7	0	7	0	3.30	.25	11,000 00
SIMCOE & BRANTFORD—																	
Geo. Travis.....	21	1,405	45	66	40	0	2,120	459	1,400	8	0	0	2	0	3.40	.24	5,640 00
LONDON—																	
T. F. Boyes	32	1,494	78	89	23	68	3,063	275	446	7	8	0	13	0	3.28	.23	16,820 00
Totals and Averages	137	9,103	351	470	126	110	20,352	1,721	2,490	36	34	11	55	5	3.35	.243	47,110 00

brief instructions for the proper care of the milk, were sent out to a number of patrons with good results.

FACTORIES HAVING Ice cool curing rooms, 11; septic tanks for disposal of sewage, 13.

FACTORIES paying by test, 33; pasteurizing whey, 55; turn cheese in hoops, 74.

WHEY BUTTER. Owing to the increased demand for fats and the high prices, 36 factories purchased whey butter plants during the past season. Of this number 17 factories sold the cream and 19 factories manufactured the butter at the factory.

In this connection it is urged that every precaution be taken to insure a good quality of whey cream by skimming a rich cream, pasteurizing, if possible, and cooling immediately to a low temperature. The cream should not be held too long before shipping or churning.

All piping and utensils with which the whey comes in contact must be strictly sanitary. Care must be taken that only a normal loss of fat in the whey occurs in the cheesemaking process.

Pasteurizing or heating the whey to 155 degrees is necessary, whether or not skimming is practiced, if yeasts and many other objectionable flavors which are transmitted through the whey are to be eliminated. Pasteurization of the whey is all the more necessary when considered from the standpoint of precautionary measures against the transmission of disease, such as tuberculosis to calves and pigs to which the whey may be fed.

PROSECUTIONS. Twenty-four patrons (same number as 1917) pleaded guilty before a magistrate to delivering deteriorated milk to cheese factories. Fines from \$10 to \$50 were imposed.

ANNUAL AND DISTRICT MEETINGS. From Nov. 1st, 1917 to Oct. 31st, 1918, 63 factory meetings were attended by the instructors and myself. Total attendance 2,385. There were many applications for speakers to attend meetings, which could not be met owing to poor railway connections and very stormy weather during January and February.

EXPENDITURE FOR IMPROVEMENTS. \$47,110 was spent in factory improvements. A considerable amount of this money went into capital expenditure for whey butter plants.

GENERAL. The high cost of supplies entering into the manufacture of cheese, together with the former acute labor shortage, has tended to somewhat discourage a few of our best factory managers, and has resulted in some of the best cheesemakers leaving the business to take up some other occupation.

It is hoped, however, that now the war is over and the situation regarding factory help will in future be more permanent, these men will see their way clear to again enter the business. Their expert services are needed, and as factory supplies become more available it should encourage not only our cheesemakers but milk producers as well. The producers and factory men deserve every credit for the excellent manner in which they performed their duties during the two past strenuous years, and in the face of many handicaps maintained the output of cheese and in addition kept up the quality to a high point so that our reputation for finest quality of cheese has not suffered.

CREAMERY INSTRUCTION REPORT, 1918.

One hundred and twenty-three creameries were given 283 full day visits and 83 call visits. Three new creameries were opened; estimates indicate an increase of about 10 per cent. in the output of creamery butter over 1917.

CREAMERY INSTRUCTION WORK, 1918.

Creamery Instructor and Group.	No. of Creameries visited.	No. of patrons.	No. of full day visits.	No. of call visits.	No. of patrons visited.	Average per cent. fat in cream.	No. of tests made for moisture in butter.	Average per cent. moisture.	No. samples showing over 16% moisture.	No. creameries these samples taken from.	No. tests made for salt in butter.	Average per cent. salt used.	Average per cent. salt left in butter.	No. of creameries using scales (Metric)	No. of creameries using cooler.	No. of creameries pasteurizing the cream.	No. of creameries using culture.	No. of creameries grading cream.	No. of creameries having septic tank.	Average temperature of storage.	No. of creameries neutralizing the cream.
D. McMillan, Stratford.....	47	20,903	111	28	0	28.6	228	14.7	23	16	221	4.71	2.97	36	28	13	5	2		244.3	2
J. B. Smith, Alton.....	48	10,541	140	14	42	29.	200	14.7	10	4	175	5.	3.	25	30	6	3	0		750.	4
G. Rickwood, Essex.....	12	2,445	32	12	0	29.9	41	14.9	4	2	34	5.4	3.5	1	4	1	0	0		350.2	0
J. H. Scott, Toronto.....	12	5,637	0	29	0	25.87	0	0	0	0	0	3.64	0	2	8	6	2	2		0	2
Cheese Inst.....	4																				
Total.....	123	39,526	283	83	42	28.1	469	14.7	37	22	430	4.68	3.12	64	70	26	10	4		1248.1	8

Expenditure {	New Creameries.....	\$15,083.00
	General Improvements.....	107,633.00
Total.....		\$122,716.00

Total lbs. butter made, 1917	23,089,308
Gain over 1916	293,725

QUANTITY OF BUTTER. In 1917 Western Ontario creameries manufactured 22,497,371 lbs. of butter. The Toronto creameries turned out nearly four million lbs. from cream, about one-third of which came from Eastern Ontario. This, with the addition of 591,937 lbs. of winter butter made at the cheese factories, gives a total production of 23,089,308 lbs. This is an increase over 1916 of 293,725 lbs. instead of a decrease as was anticipated in the fall of 1917, before the actual returns were obtained.

PATRONS. Thirty-nine thousand, five hundred and twenty-six patrons supplied cream to the creameries; the average per cent. of fat in the cream was 28.1.

MOISTURE IN BUTTER. The average moisture content of 469 samples of butter was 14.78 per cent.; a proportion of these tests was made at each creamery; 37 samples contained over 16 per cent. moisture and were taken from 22 creameries.

SALT. The average salt used and retained in the butter according to 430 tests made was 4.68 per cent. and 3.12 per cent. respectively.

TESTING CREAM. Sixty-four used the metric scale for weighing cream samples for testing.

COOLER. Seventy creameries used a cooler.

PASTEURIZING. Twenty-six creameries pasteurized the cream all or a part of the time.

CULTURE. Ten creameries used a culture.

GRADING. One creamery graded the cream and paid for according to grade. Six creameries graded for churning.

SEPTIC TANK. Twelve creameries have a septic tank for disposal of wash water.

NEUTRALIZE THE CREAM. Eight creameries neutralize very acid cream during warm weather.

EXPENDITURE FOR IMPROVEMENTS. Three new creameries were built at a cost of \$15,083 and \$107,633 was spent in general improvements.

BUTTER GRADING SERVICE. The butter grading service was again operated from one grading station, the Municipal Abattoir, Toronto. Thirty-one creameries signed agreements to take advantage of the opportunity to send in butter samples for scoring. Ten of this number came into service for the first time. The same form of agreement as in 1917 was used, and the ten new creameries were supplied with stamping outfits, 14 pound boxes, etc., at cost.

The grader also referred in a number of cases, between the original seller and buyer of creamery butter when asked to do so by both parties. This work is separate from the regular grading service. The grader, Mr. Scott, also did the instruction and inspection work for the several Toronto creameries. He will submit a full report of his work.

BACTERIA, YEASTS AND MOLDS IN RELATION TO KEEPING QUALITIES OF BUTTER. It has been fairly well established that the absence of yeasts and molds in butter is an indication as to whether or not the pasteurizing temperature has been high enough to insure that the butter will keep in cold storage. Such an examination also indicates whether or not contamination of the cream has taken place after pasteurization; that is to say, cream may be pasteurized at the proper temperature and yet become contaminated from improperly cleaned pumps, piping, and unsterilized churn or in some other way. With a view of doing some preliminary work on this point, I asked Prof. Lund, Bacteriologist at the Ontario Agricultural College, to take up the matter, and if sufficiently important results were obtained, the work could be extended for 1919. In my judgment there

is a wide field for this kind of work in the creamery industry. We hope to be able to provide for the creamery men who make butter from pasteurized cream and send in samples regularly to the grading station, additional information to that indicated by the score of the grader, i.e., by reporting on each sample, a count of the yeasts and molds present in the butter. With this information, the buttermakers should be in a position to find out the cause if the yeasts and mold count is high in the finished butter from pasteurized cream. He should also have, from the results of this examination, a pretty fair idea whether or not the butter will keep properly in cold storage. Prof. Lund will give the results of his preliminary work on this point at this convention, and I shall appreciate it very much if the creamery men will take full advantage of the opportunity for discussion. I wish to express my appreciation of Prof. Lund's work in this connection and hope that in future we shall be able to give the creamery men who pasteurize their cream a service of special value.

PASTEURIZATION. It cannot be too strongly urged that proper pasteurization of cream is, along with cream and butter grading, the solution of many of the problems which have arisen in regard to improved quality. The pasteurizing temperature recommended at the Ottawa Dairy Conference was 170 degrees Fah., holding for at least ten minutes. If this temperature can be unanimously adopted by the creamery men, the Storch test may also be applied, which test has been universally adopted by the creamery men of the Western Provinces.

JUNE BUTTER. In May, a circular letter was sent out to the creamery men, inviting them to forward to the grading station one 14 lb. box of June butter. This butter was kept at about ten degrees Fah. during the summer and the keeping qualities noted. Twenty-two entries were received and these samples of butter are now on exhibition. The examination of these samples will, I am sure, prove interesting and of much educational value to the creamery men.

MR. G. G. PUBLLOW: I wish to congratulate Mr. Herns on the splendid exhibit of butter and cheese that you have at this convention. I have seen a good many exhibitions of butter and cheese, but I have never seen as attractive an exhibit as you have at this time. The men in charge should be classed as artists. I was glad to hear Mr. Herns say that the object of that exhibition was to show the value of our dairy products. There is too much indifference towards exhibits on the part of producers of dairy goods. One lesson has come out of the exhibition that we hold annually in the East: All the cheese shown are sent to cold storage and cured in exactly the same condition, and I think that accounts for the uniform quality. When you realize that 87 per cent. of these cheese scored 96 points or over, you will have some idea of the difficulty of the judges in making awards. It is an object lesson in having cheese cured at a uniform temperature. I think more attention should be given to having a proper place for storing cheese, and in seeing that they are in proper condition before they leave the factory. Many of our factories do not give consideration to curing. The cheese are shipped practically from the hoops every week and that does not give our makers and instructors an opportunity for good work. Mr. Herns mentions in his report the increased number that are making whey butter. We have the same experience in Eastern Ontario. I have no objection to the factories skimming the whey, if they can do it to advantage, but I would like to give a warning to the factorymen to see that their plants are in a sanitary condition. If you are making whey butter, don't neglect the sanitary end of the business. We have more difficulty in factories where they are making whey butter than ever before, particularly

where the whey is not pasteurized. You must be particular in the manner in which the pipes are put in, and see that there is proper provision made for having them cleaned. We had one factory where the pipes had to be taken down and burned out. It is better to pay the makers so much per pound for making the whey butter rather than make them a party to the profit from the process. We all know human nature, and we have noticed in these factories where whey butter is manufactured, that there is a greater loss in the whey. I do not think there is any necessity for that, if the work is properly carried on. With the present price of feed and the shortage of butter, I think there is something in it for the farmer. The average price of whey butter last year was 40c. per pound.

I was glad to see the resolution brought forward at the Dairy Conference to have a uniform standard for dairy products all over the Dominion. We should put forth every effort to see that our dairy products go to the consumer in the very best condition. We should aim to have our butter and cheese of such a quality that it will give entire satisfaction to the consuming public. We do not follow our goods to the market, so to speak, and see what they look like when they come to the hands of the consuming public. If we are to get the best results we will have to devote more attention to seeing that our goods get to the consumer in the very best condition.

THE FUTURE OF THE CREAMERY INDUSTRY IN WESTERN ONTARIO.

W. G. MEDD, WOODHAM.

There is the immediate future and the distant future, and it is about as difficult to tell what will take place in the one as in the other. My subject therefore is a difficult one. I scarcely know how far into the future I am to foresee or just how much of the future I am to talk about.

It has been said that a study of history is necessary to enable one to forecast in any measure, what the future will be. The reason is obvious. It is but a study of cause and effect. It is not my purpose to give you a history of the Creamery Industry at this time. I want simply to say this, that, we have lost to some extent the ideals of the pioneers of the Dairy Industry in Western Ontario. Some question the value of the ideals. They ask, "What have ideals to do with making butter and selling butter?" The answer is "everything." An ideal is a standard of perfection we seek to attain. What then have we lost? We have lost largely an ideal of uniform butter—butter representing the whole product of Ontario Creameries. The Cheese Industry on the other hand has largely attained such an ideal. I question if you could purchase a car of Ontario butter made in two or more creameries, and get it uniform in every respect. To use a current phrase, I would say that "we've been drifting on the tide of materialism." We have been going in a somewhat haphazard way, the present taking the largest share of our thought and planning. We forget that in planning only for today, we are apt to fail to-morrow.

It takes time, it takes labor, it takes study, it takes money, to press toward the mark of our high calling in butter making. The worst part of it is that drifting doesn't get us anywhere in particular. We make no progress without a goal in view. We have also lost to some extent, the ideal of perfection in our finished product. Butter has been easy to sell, we found no trouble to sell butter of any kind.

good prices have prevailed. Producers have had greater returns. The high cost of manufacturing during recent years, has reduced the profit to the manufacturer. At any rate it has done so in the cream collecting creameries. This should not prevent thoughtful planning for the future. It should be provocative of the most careful planning that the industry be not handicapped by too cheap service.

What I wish to point out is this, "That the ease with which we can sell butter, and the lack of criticism on the market, has reacted on the quality of cream received and on the quality of the output of butter. Now, don't misunderstand me. I am not saying that the quality of Western Ontario butter is bad, not by any means. There is a lot of good butter made in Western Ontario, and while I say this, I want to say also that there are a great many varieties, of good butter made in Western Ontario. This should not be.

I would like to see just one kind of good butter made in Canada, *Canadian butter*, second to none, equal to the best made, anywhere; I don't care where it's made, Denmark or anywhere else. How much first grade butter do we make in Ontario? I don't know, but I'll give you something to figure on. According to the statement of Mr. Burgess, Chief Inspector and Grader for the Dairy Produce Commission, it is this, that of the butter commandeered last Oct. and Nov.—70.73 per cent. of Ontario Butter graded number one, and of Quebec butter, 94.48 graded number one. It is said "comparisons are odious." May I ask to whom?

This butter was made during months favorable to producing No. 1 butter. Can you reckon how much of our last summer's butter would grade No. 1? I think not so much as 70 per cent. What about next year? That's the near future. I know changes may take place. Even radical changes might come. The United Farmers of Ontario might buy up and take over the whole industry. Their ambition just now, as I understand it, is to get part of it. Why not all? An argument used in favor of the scheme, is that the farmers have little or no control over their product after it leaves the farm or local factory. I'll not try to refute the argument. It's a good argument. It's a big argument, it comprises so much. This argument applies to everything the farm produces, wheat, grain, eggs, butter, cheese, live-stock, hides, wool, in fact everything, and if followed out logically the farmers should own all flour mills, cereal mills, packing houses, cold storage, creameries, cheeseries, shoe factories, woollen mills, in fact all factories where the raw material comes from the land. There would then be just two classes, or perhaps just one class by combining them, the farmers and their hired help—their employees. of course they would educate and govern themselves. If this is the way the golden age is to come, everybody say "Amen," "Let it come." Effort is being made; no doubt, will continue to be made, along this line. If anything is done it will mean change of some kind, whether for the best or not, the future will tell. So much for that. Speaking more seriously, we cannot get away from the fact that three classes are needed to successfully carry on the dairy industry, namely, producers, manufacturers, distributors. No matter who or what controls men, machinery and organization will be required just the same. It is a question of economy. Much study is required. I believe in evolution. These things will be worked out eventually for the common good.

Other things might occur that would materially affect our industry. The oleo-margarine trade may be permitted to continue in Canada. This would certainly knock low grade butter. How it will in the future affect first grade butter is hard to say. We do not know how soon Western agitation will result in tariff changes.

We must prepare for anything. One sure thing is that our export trade will increase with the increased production that we count on making. If we are not awake now, the greater competition of butter producing countries will open our eyes to the necessity of concentrating our efforts on the making of a uniform first grade butter. Now, what shall we do? I want to state a few things that, to my mind, are essential. I will state them under two heads. 1. Manufacture, 2. Marketing.

Under "manufacture" let me say first, we want a better raw material and to get it I advise more frequent delivery, and grading of the cream. These two should go together. It is not just to the producer to grade his cream while leaving it on his hands, 4, 6, or 10 days at a time.

Those farmers who ship to centralizers or sell to buying stations do as they please anyway. It does not matter whether this old, sour cream is shipped or collected and is run through a pasteurizer and doped with a neutralizer, it will result only in a poor advertiser for Ontario Butter. The increased cost is the main reason for not getting a more frequent delivery. The hidebound adherence to that old adage "competition is the life of trade" has to answer for the strangling of a lot of profit to both farmers and factory men.

And speaking of grading the cream for butter making, I recommend to you the grade standards for cream set by the Dominion Dairy Conference, Ottawa, Nov. 28th, 1918.

GRADE STANDARDS AND GRADE DESCRIPTIONS OF CREAM.

SPECIAL GRADE: This grade shall include any lot of cream which is fresh and clean in flavor, of a uniform consistency and fit for making into Special Grade butter. The acidity of cream in this grade shall not be more than .3 per cent. (three-tenths of one per cent.) at the time of being graded at the creamery where it is to be manufactured into butter.

FIRST GRADE: This grade shall include any lot of cream which is reasonably fresh and clean in flavor, of a uniform consistency and fit for making into butter of this grade without the addition of acid neutralizing agents. Its acidity shall not be more than .5 per cent., (five-tenths of one per cent.) at the time of grading at the creamery where it is to be manufactured into butter.

SECOND GRADE: This grade shall include any lot of cream that does not need the requirements specified for the next higher grade, which is bitter, stale, musty, metallic or otherwise unclean in flavor.

It has been demonstrated by experiments carried on by Instructors, and by actual grading in a number of creameries, especially in Western Canada, that grading can be done from both patron's cans and collector's samples. We do some talking about grading butter, but the right place to begin is at the root of the matter. Let us grade the cream.

Next let me speak of making the butter. It may be some time before we will have the kind of cream we desire, and in the meantime—and I want to emphasize this—there isn't anything that will help make the kind of butter that will sell on any market, as pasteurization. I attribute any success I have had in making butter to frequent collection of cream, having it as sweet as possible, and to pasteurization.

Again I will refer you to the Dominion Dairy Conference, and will read you its resolution regarding pasteurization of cream for butter making.

Moved by H. H. Dean, seconded by L. A. Zufelt, that: Whereas, bacteria under modern conditions of creamery butter making, play so very important a part in determining the flavor of the butter, which is regarded as forming about one-half of its value; and

Whereas, pasteurization has been found to be the most practicable means of controlling bacteria and enzymes in milk and cream, thereby improving the flavors and keeping quality of butter; and, whereas, the expense of such pasteurization is not such as to prevent its immediate and general adoption by creamery butter manufacturers;

Resolved, that this Dominion Dairy Conference hereby recommends the system known as pasteurization of milk or cream in the manufacture of all butter made in Canada, and urges its adoption at once by all creameries which are not already using this method. The standard temperature recommended is 170 degrees Fahrenheit, holding for ten minutes.

Some Ontario Creamery men have questioned the advisability of heating the cream higher than 150 degrees. I am not going into a scientific discussion of this question; I wish to keep to the practical side. I may say here, however, that I have been of the opinion for some time that we should have in connection with the dairy industry of this province a department of research, with a bacteriologist and a chemist having their whole time devoted to dairy research. Returning to the question of temperature, I think the temperature recommended is a safe one. For the sake of uniformity, should we not make an effort to follow closely the recommendation? For last year, 1918, out of 123 creameries in Western Ontario, only 26 pasteurized. There is surely room for progress. Permit me now to say something about uniformity in manufacture—details of making the butter. Notwithstanding the excellent instruction given at our Dairy Schools and by our travelling instructors, I really believe every butter maker in Western Ontario is a law unto himself.

Take the matter of "salting" for instance. In a report given last year at Stratford by Mr. Hearn, the salt content of 241 churnings varied from .9 (Nine-tenths of one per cent.) to 6 per cent., surely variation enough to suit everybody. We have learned that in the butter commandeered there was a great variation in color and texture, not to speak of flavor. We can not expect to take a high place in export trade with such a variety in our butter.

Can we not get a uniform butter, throughout Canada by adopting uniform methods of making, 1st by agreeing on uniform methods of making; 2nd by agreeing on a uniform standard and setting ourselves to attain it?

One thing that will help considerably in this respect is, "Selling on grade." The one way to sell that is fair to both buyer and seller is on the graded basis. Some may question the capability of one man, no matter how qualified he may be, to grade butter under all conditions. This question has come to me from both buyers and sellers. Personally, I think one man, the best man for the job, should do the grading. Mistakes may be made. Butter may not turn out as graded. It is only just that in such cases provision be made for re-adjustment. I think those cases will be the exception.

The outlook for the future is not dark. It is full of promise. We are living in a land of promise. We should take possession of it with faith and courage. The needs of the future are apparent, namely: Uniformity of product; system in marketing, and the adoption at once of the methods that will secure these things.

In conclusion, let me ask for Western Ontario the first place among the provinces in the excellence of its creamery butter.

May I quote some words that are applicable to any noble undertaking: "We look for a new earth and we set ourselves to fashion it. We see a City Beautiful coming when we build it."

ADDRESS.

GEO. A. PUTNAM, DIRECTOR OF DAIRYING, TORONTO.

First of all I would like to compliment the makers and producers on the very excellent exhibit which you have at this convention. The Province of Ontario has never before shown such an attractive exhibit of cheese, and the quality is excellent throughout. The butter makers of the Province of Ontario have accomplished wonders with the raw material furnished them. You know the condition, and I need not enlarge upon it. We have not made the progress that we should in improving the quality of our raw material.

The possibilities of development in the dairy industry in the near future are very great. The very best markets of the world are open to the dairymen of Canada. You have an opportunity this year such as will never present itself again, and we must do something to establish and protect a high standard for export dairy products.

No government, or dairy association can force people to take proper care of their cream. We cannot force the makers to follow the best methods but we can help them in many ways. We cannot *demand* quality, but the government should protect the man who is producing a high quality of dairy products so far as the export trade is concerned, and when you protect the export trade, you are, to a certain extent, protecting the home trade. Some effective method must be adopted at once, if we are to get the benefit of the exceptional opportunity that is now presented for making a name for Canadian dairy products. Canadian cheese already has an enviable reputation that must be protected; let us see to it that Canadian butter is as favorably and as well known. What can be done in 1919? Government officials can do but little without the hearty co-operation of all engaged in the industry. The makers can do much to induce the producers to furnish the required quality of raw material. I do not think the makers fully appreciate the fact that an earnest appeal on their part is much more effective than an appeal from Government officials.

Might I suggest that in order to protect the good name of Canadian cheese, and to establish an equally good reputation for Canadian butter, all dairy goods shipped out of the province in which they are manufactured should be graded and properly labelled and certificates issued. If you produce a low grade product, you should be made to keep it within the province. A section of the province that is turning out exportable goods, should not be handicapped by inferior goods from other sections. We have a butter grader with ability, and the confidence of the dairymen will give Mr. Scott additional assistance if necessary. You cannot stand still in butter grading or any other line of work that you may undertake, you must either progress or go back. We must not go back in the matter of grading; we must go ahead. Butter grading is well worth while. The money spent by the Provincial Department in butter grading has already been of great direct and indirect benefit. We should, however, have more co-operation on the part of the makers and the commission men, a more definite understanding among all interested parties. Would it not be well for you to appoint a committee to take up the whole question with the Department and the commission men? Let us be frank in this whole matter and make it worth while. I do not believe we fully appreciate the magnitude and importance of the industry. The man who is an efficient buttermaker and who will co-operate in the big things that are going to be done along dairy lines in the near future, will in the near future occupy a position of great affluence and importance.

Let us take hold of this industry in a business like way and conduct it as though it were a permanent feature of Ontario agriculture.

At your dairy conventions and all dairy meetings, we seldom hear anything beyond the presentation and discussion of methods whereby the output will be increased and the standard raised. The object of all this is to increase the profits, and we are glad to know that the past season has been so satisfactory in this respect. Dairying is the most profitable as well as the most dependable, line of agriculture in the Dominion. May we ask you to turn from the consideration of profits to discuss for a short while the question of a wise use of money, for you represent a large current income?

Man is never truly happy until he contributes a little to community progress, and to the happiness of other people. Exercise your influence as leaders in your respective communities. Canadians, both men and women, accepted their responsibility with much credit during the past four years.

Just before the war, we appealed to the Women's Institutes to undertake certain features of work; the reply was: "We have already more than we can do." But when an appeal was sent out to the women of the Institutes, for assistance in War Work, the response was immediate and liberal. They not only did more on their own farms and in their homes, but they contributed in one year to the Red Cross and for other patriotic purposes in goods and money \$855,000,—more than \$28.00 per member in one year. Of course it was essential that we look after the boys Overseas, and all credit to the women and men who did their part; but we have responsibility now, as great as we had at that time. In the period of rebuilding, and readjustment, every true Canadian has not only responsibility but an unprecedented opportunity to exercise an influence for the good of the whole community. Exercise your influence how? In the social life of the community. There is no class of men who come more in touch with the people of the whole community than the men identified with the cheese factory and the creamery. The officers and makers in the factories, should take a keen interest in the educational affairs of the province. Dr. Cody has expressed the hope that every School Board will have on it at least one woman. He has more hope of the women of this country in connection with educational matters than he has of the men. Men have had a fair chance, but the women are going to see to it that their children are looked after as well in the schools as they are looked after at home.

I wish I had time to tell you of the health conditions in the rural sections of this Province as revealed through the medical inspection carried on under the auspices of the Women's Institutes. In the Women's Institutes we have a sort of Free Lance organization. Why should the Women's Institutes be the organization to introduce medical inspection in schools? The need existed and they set themselves to the task. They have examined over twenty thousand children in the rural schools of the Province, and it was found that the general health of the children in the rural districts is below that of the children in the city schools. Conditions have been reversed in the last fifteen years. Some years ago it was recognized that the children in the city schools were weakly and delicate as compared to the rural child, but we find to-day that the children in the rural schools have a larger percentage of defects—defective eyesight, defective teeth, adenoids, diseased tonsils, etc., than the city children who have had the advantage of medical inspection and supervision by a nurse. Sixty-five per cent. of the children examined under the auspices of the Women's Institutes needed their teeth attended to; thirty-three per cent. of the children in the rural schools are troubled with adenoids or diseased tonsils; nineteen per cent. of the children have defective eyesight, and ten per cent. have defective

hearing. Are you going to allow the rising generation of this province to suffer under these handicaps. The expenditure of \$5 when the child is young is as beneficial as the expenditure of \$50 when he has grown up. It is a good investment. I have every hope that the Minister of Education will provide for a health survey throughout the rural sections of the Province. We want co-operation of your members and other public spirited persons in making such survey of real value.

Those who are interested in community effort, health and educational matters should write to the Department of Agriculture, Parliament Buildings, Toronto, for a copy of the Women's Institute report for 1918.

REPORT OF COMMITTEE ON RESOLUTIONS, 1919.

(1) Resolved, that we, the members of this Association desire to express our appreciation of the hearty reception given the members and delegates by the citizens of the City of London. We also desire to thank the Mayor and Council for their kindness in furnishing the free use of the Masonic Hall for the Convention and for the Dairy Exhibition.

(2) We desire to express our appreciation of the addresses given by the various speakers which have contributed to the success and educational value of the Convention and we extend to them our sincere thanks for their assistance.

(3) The thanks of the members of this Association are hereby tendered to the Canadian Salt Co., Windsor, through their general manager, Mr. E. G. Henderson, for the very handsome badges presented by the Company to the members of this Association.

(4) We wish to thank the Press for the excellent reports published by them, of this Convention and express our appreciation of their assistance.

(5) The thanks of this Association are hereby tendered to the Toronto Produce Exchange; Heller & Merz Co., New York; C. Richardson & Co., St. Mary's; The R. M. Ballantyne Co., Limited, Stratford; Geo. E. Booth, Ingersoll; D. H. Burrill & Co., Little Falls, N.Y.; The J. B. Ford Co., Wyandotte, Mich.; The Western Salt Co., Courtright, Ont.; The DeLaval Co., Ltd., Peterboro, Ont.; The Parke Davis & Co., Walkerville, Ont.; The Imperial Bank of Canada; W. A. Drummond & Co., Toronto; Sharples Separator Co., Toronto; Marschall Dairy Laboratory, Madison, Wisc.; and the Slawson Co., Ingersoll; for the special prizes donated for the Winter Dairy Exhibition.

(6) That this Association is in sympathy with the plan for the butter grading service put into effect last season by the Dairy Branch of the Ontario Department of Agriculture and believe if continued this will stimulate and encourage a permanent grading system for creamery products.

(7) That as dairymen we are under great obligations to both the Provincial and Federal Departments of Agriculture for assistance rendered the dairy industry and we wish to tender our sincere thanks and express our appreciation of the work done by these Agricultural Departments in promoting the Agricultural interests of the Province and of the Dominion.

IN MEMORIAM—J. N. PAGET.

Resolved, that this Association in Annual Convention assembled, desires to place on record an expression of their deep sense of the great loss which has been sustained, not only by this Association but by the dairy industry of this Province, in the removal by death of the late J. N. Paget, of Canboro, Ont., who, during most of his life time, devoted his best energies to promote the great dairy industry of this country.

For over thirty years he never neglected an opportunity to advance the dairying industry whether as President or Director of this Association or in his business relations as a manufacturer of dairy products or as a Farmers' Institute lecturer. His dealings in life were characterized by a high sense of honor and upright living.

That this resolution, together with a copy of the Directors' Report, be placed in the records of this Association and a copy forwarded to the family of the deceased.

RESOLUTION *re* RELEASING SOLDIERS CONNECTED WITH THE DAIRY INDUSTRY.

Whereas, the war debt of Canada can best be paid off by developing its natural resources, particularly as having reference to the dairy industry, and,

Whereas, in view of the great increasing demand for dairy products, and,

Whereas, the dairy industry is badly crippled for want of suitable labor, therefore, be it

Resolved, that this Convention bring to the attention of the Government, now that peace is practically declared, the importance of releasing, at the earliest moment possible, all soldiers in any way connected with the dairy industry, which includes producers, cheese and butter makers, milk distributors, and others, that they may return to their respective occupations and so be ready when next season opens for a big output of milk and dairy products.

OLEOMARGARINE.

Whereas, the Federal authorities saw fit to temporarily admit the manufacture and sale in the Dominion of Canada of oleomargarine; and

Whereas, the order permitting said manufacture and sale was granted only to relieve food conditions during the war; and,

Whereas, on the successful conclusion of the war, conditions in the Dominion will again become normal;

Be it therefore resolved that the said order be rescinded and that the manufacture and sale of oleomargarine within the Dominion of Canada again be declared illegal. And also that no further action be taken before consulting the National Dairy Council.

Whereas, our Past President, Mr. Donaldson, has been an active member of the Dairy Produce Commission during the past year and has been the means of securing for our dairy products due recognition as to prices and movement;

Be it resolved that this Association desires to express its appreciation of his services and to extend to him our sincere thanks for the valuable work which he was able to do, and carry out.

RESOLUTION *re* NATIONAL DAIRY COUNCIL.

This Association desires to express approval of the formation of the National Dairy Council and also give the Directors power to appoint the representatives to act on the Council Board.

RESOLUTION *re* STOP-OFF OF DAIRY SHIPMENTS.

Whereas, the stop-off privilege in connection with warehousing of cheese and butter, having been cancelled by the railway companies, thus imposing double freight rates for small lots of cheese or butter, increasing the cost of handling from producer to consumer;

Be it resolved that the Railway Commission be requested to reconsider the matter.

RESOLUTION *re* CO-OPERATIVE DAIRY COMPANY.

Having heard the report of the special Cheese Committee in reference to the Co-operative Dairy Company, which it has been proposed shall be established in Ontario, as well as the report of our President, who was a member of the Committee of Dairy Farmers that recently visited Saskatchewan to investigate conditions relating to this proposal,

We desire to express our appreciation of the importance of this matter and its possibilities for good to the dairy industry, and would recommend the re-appointment of our representatives on the Cheese Committee and that our Directors be given full power to deal with this matter in such manner as they may deem wise, should need for action later arise.

Moved by MR. T. G. MARKHAM and seconded by MR. BRISTOW, that the foregoing resolutions be adopted. Carried.

RESOLUTION *re* INCREASE IN CLASSIFICATION BY RAILWAY COMPANIES OF CHEESE AND BUTTER BOXES.

Whereas, the Railway Companies have made application to the Railway Commission for permission to increase classifications of cheese and butter boxes which, if granted, will mean an increase of nearly 50 per cent. in the prevailing rates, and,

Whereas, freight rates have been increased twice in 1918, and,

Whereas, if the proposed increase is allowed it will mean increased cost of materials to both cheese and butter manufacturies, which will affect both producer and consumer;

Be it therefore resolved that this Association, in convention assembled, go on record as distinctly opposed to any increase and as strongly urging that the present classification stand as at present.

Moved by R. W. STRATTON, seconded by ROBT. MYRICK. Carried.

THE CHAIRMAN: Before leaving the platform I wish to introduce to you Mr. Frank Boyes, of Dorchester, the newly elected president of the Dairymen's Association of Western Ontario. He will look after your interest in an aggressive and capable manner. I desire to thank you for the unanimous kindness that has been extended to me by all connected with this Association since I have been President.

MR. FRANK BOYES, Dorchester, President Elect: I thank you very much for the honor which you have conferred upon me this afternoon in electing me your President for the year 1919. I have to thank those who a couple of years ago saw fit to select me as one of the Directors of the Association, and those who since have elected me President. I recognize that there is a great duty involved in accepting this office, and I will do my very best to carry out the high duties that have fallen to my lot at this time, and ask for your hearty support and co-operation in the work for 1919. (Applause.)

CHEESE AND OTHER DAIRY NOTES.

PROF. H. H. DEAN, O. A. COLLEGE, GUELPH.

The cheese industry of Canada will need careful consideration during the next few years if it is to remain the strong feature of dairying, as has been the case in the past. There are many indications that it will not long survive a return to pre-war prices for cheese. Unless the price of cheese can be maintained at somewhere near its present level, the manufacture of Cheddar cheese is likely to drop to a point where it will be a minor, instead of a major factor, in Canadian dairying.

Among the points which should receive careful consideration, is that of consolidation of cheese manufacturing interests, whereby making charges are reduced to the lowest point possible, consistent with the making of fine quality; and the selling costs got to a "rock-bottom" basis. It is evident that this cannot be done under the present system of small factories, many of which are poorly equipped and inefficiently manned, while the system of selling, in vogue previous to the war, was not on the lines of good business. Whether these changes shall be brought about by farmers owning and consolidating the factories, or by a consolidation of present interests, or something entirely different, time alone will reveal.

SKIMMILK AND BUTTERMILK CHEESE.

Prevention of wastes is another factor to be considered in modern factory management. The utilization of all kinds of human food to the fullest extent possible, is characteristic of these times. The separation of whey and the manufacture of the fat, formerly fed to the pigs, into human food, is an instance of the conservation of what was formerly a waste from the factory so far as human food is concerned.

The chief objection to the manufacture of buttermilk and cottage cheese, is the labor involved. Recent tests made at the dairy of the O. A. College, indicate that the curd can be separated by means of centrifugal force in a separator bowl. While we have not applied it in a commercial way, our work indicates that the separation of curd by centrifugal force, from sour milk, is quite feasible. There are now special machines for this purpose built on the principle of a laundry dryer. We obtained from nine to as high as twenty-nine pounds of cheese from 100 pounds of sour milk, averaging 15.5 pounds to the hundred. The low yield was too dry, and the high yield too moist. From twelve to fifteen pounds of excellent food material can be obtained from ten gallons of buttermilk or sour skimmilk. This will spread on bread like butter and may easily replace the more expensive butter for at least one meal in the day. If the manufacturer received fifteen cents per pound, which would pay well, the return per hundred pounds sour milk would be from \$1.80 to \$2.25. If the consumer paid twenty to twenty-five cents per pound for it, this soft cheese would be comparatively cheap food.

Cheese of this class was held in cold-storage at a temperature of 40 degrees F., packed in 14 pound butter boxes, and kept in good condition for six weeks.

CHEDDAR CHEESE EXPERIMENTS.

PASTEURIZED MILK. This is a continuation of the work done in previous years. Briefly summarized, the results for this year show, that the pasteurized milk produced 1.84 pounds more cheese per 1,000 lbs. milk, than did similar milk treated in the usual way for making Cheddar Cheese; the pasteurized milk cheese contained .25 per cent. more moisture when one month old, and scored, as the average of six experiments, a little higher in flavor and total score, than did the cheese made from normal milk. The cheese made by using five per cent. of lactic acid culture in the pasteurized milk, were slightly better in quality than those made by using hydrochloric acid in the milk pasteurized for cheesemaking.

While we are not prepared at present to recommend the pasteurization of milk for the manufacture of Cheddar Cheese in Canada, it is possible that compulsory pasteurization of all milk and its products may be necessary in the near future, in which case our work shows that good cheese can be made by using pasteurized milk, but the expense for manufacturing would be increased, which would be offset to some extent, by the increased yield of cheese resulting from the use of pasteurized milk.

COMMERCIAL VS. HOME-MADE RENNETS. Owing to the scarcity and high price of commercial rennet, a number of cheesemakers have tried the plan of making their own rennet extract, by using calves' stomachs purchased from farmers, butchers, and abattoirs. In the following tests we used one stomach soaked in from two to three pounds of water and this extract was added to 1,000 pounds of milk. The commercial rennet was used at the rate of three ounces of extract per 1,000 pounds of milk. The results were: the commercial rennet produced slightly more cheese (one-tenth of a pound more per 1,000 pounds milk) and the cheese scored slightly higher (.1 of a point), but the home-made extract coagulated the vats of milk in less time (9.5 minutes) and there was slightly less loss of fat in the whey, where home-made extracts were used. On the whole, there was not much difference in the results. A cheesemaker can make rennet-extract at home by soaking the required number of good stomachs for about five days in salt water and by adding a small quantity (1 dram per pound water) of acetic or hydrochloric acid, to act as a preservative.

EFFECT OF MILK TEMPERATURE AT TIME OF ADDING RENNEN. In order to economize on rennet, some makers heat the milk to 88 degrees or 90 degrees F. before renneting, and use less rennet. Five tests were made by using two to two-and-one-half ounces of rennet per 1,000 pounds milk which was at a temperature of 90 degrees F., comparing this with similar milks where the vats were set at 86 degrees F., using three ounces of rennet per 1,000 pounds of milk. The chief results were a longer time (average 4 minutes) for coagulation in the lots set at 90 degrees; nearly one pound more cheese per 1,000 pounds milk; and a slightly lower average score of cheese where less rennet was used in milk at a higher temperature. The tests indicate that rennet can be saved by adopting a higher setting temperature for the vats of milk, but the quality of the cheese is likely to be somewhat poorer as a result of these variations from standard methods of Cheddar Cheese making.

RENNET SUBSTITUTES. The scarcity and high price of commercial rennet-extract has led to the use of a large number of substitutes for rennet. These are nearly all made from pepsin, or pepsin and rennet, and are sold under various trade names. They have undoubtedly been of great service to the cheesemakers

of Canada during the past four years, when supplies of European calves' stomachs for rennet manufacture were almost unobtainable, and without the substitutes, the cheesemaking industry of Canada would have been seriously crippled. The thanks of all those interested in the Canadian cheese trade are due the manufacturing chemists who came to the aid of cheesemakers in their time of great need.

There are, however, two or three weaknesses of rennet substitutes which should receive the further attention of chemists working on this question. One is, the lack of keeping quality. Our experience is that all these substitutes perceptibly weaken in from two to three months, and at the end of about six months are practically useless. A second weakness is their lack of coagulating power as compared with rennet, as we find it necessary to have more acid on the milk at the time of adding the pepsin coagulant and to use four ounces per 1,000 pounds of milk, as compared with the standard three ounces per 1,000 for rennet-extract. A third weakness is a tendency to produce cheese which is not quite so nice in texture, as where rennet is used. The average score of the cheese made from rennet during the past season, was one point higher for texture as compared with cheese made by using rennet substitutes. The total average score of the rennet cheese was one-and-one-half points higher as compared with cheese made from similar milks, by using rennet substitutes for coagulation.

Our experiments indicate that better results are got by mixing rennet and pepsin solutions. A mixture of $1\frac{1}{2}$ ounces of rennet and 2 ounces of pepsin solution, and adding this to 1,000 pounds of milk, increased the yield of cheese and improved the quality of the cheese made as compared with using rennet alone, but we would not like to press this point until we have made further tests on this question. The results were an increase of $1\frac{1}{4}$ pounds of cheese per 1,000 pounds milk, and nearly half a point higher average score, by mixing the coagulants, as compared with using rennet alone.

Two methods of increasing the coagulating power of pepsin solutions, have been suggested. One, is by increasing the acidity of the milk at the time of adding the coagulant; and the other is, to increase the temperature of the milk at the time of coagulation.

As a result of six tests where milk, having an average acidity of .17 per cent., was coagulated with rennet (3 ounces per 1,000) and compared with similar milks, having an average acidity of .184 and coagulated with pepsin solution (4 ounces per 1,000), it was found that the pepsin lots coagulated in $7\frac{1}{2}$ minutes less time; were made into cheese in about one hour less time; the yield of cheese was 1.08 pounds greater per 1,000 pounds milk; the pepsin-cheese lots contained slightly more moisture, and scored slightly lower in flavor, closeness, color and texture, averaging .68 points less, in total score, for all the lots. These tests show that the higher acid on the milk at the time of "setting the vat" with pepsin solutions, shortened the time of coagulation and for making the cheese, increased the yield of cheese, but produced cheese of slightly poorer quality, as compared with normal rennet lots.

The standard temperature for coagulating milk used in making Canadian Cheddar cheese, is 86 degrees F. As a result of increasing the temperature of the milk to 90 degrees F., and using three ounces of pepsin per 1,000 pounds of milk, and having an average acidity of .18 per cent. in the milk at this time, the yield of cheese was practically the same as where four ounces of pepsin were used in milk at 86 degrees F., though the time for coagulation was five minutes longer with

three ounces at 90 degrees F. and the quality of the cheese .84 point lower in total score.

Comparing three ounces of rennet per 1,000 of milk at 86 degrees F. for coagulating milk, with four ounces per 1,000 of pepsin at 90 degrees F., acidity of milk .17 per cent. in both cases, the time required for coagulation was five minutes longer using the pepsin, the yield of cheese was the same for both lots; but the cheese made by using rennet scored an average of three points higher. The chief difference was in texture of the cheese, in favor of rennet lots.

NORMAL VS. MOIST CURDS. It has been suggested a number of times that cheese-makers stir the curds less in order to retain more moisture in the curds and cheese, thus reducing the number of pounds of milk required to make a pound of cheese, which factor has been gradually increasing for a number of years. The danger in following this suggestion is in deteriorating the quality of the cheese.

During the past season seven tests were made by dividing the curd from a vat of milk into two parts as nearly equal in weight as possible. One of these was stirred to a normal condition, containing an average of 49.18 per cent. moisture; the other half contained an average of 53.54 per cent. moisture. The green cheese contained respectively 35.4 and 36.4 per cent. moisture; and the cheese one month old, percentages of 35.27 and 36.21. In other words, the moist curds contained about 4.4 per cent. more moisture than did the normal curds, and the green and ripe cheese about one per cent. higher moisture content.

The scoring of the cheese indicate a slightly better quality in flavor, closeness, color and texture, from the normal curds, averaging nearly one-half point higher in the total score. According to present standards of Canadian Cheddar cheese, stirring the curds after dipping to a point where they contain over fifty per cent. moisture, means a greater yield of cheese, but the quality of the cheese will likely be not so good as where curds are stirred to a normal condition, or so that they contain less than fifty per cent. moisture.

PARAFFINING CHEESE. In order to prevent excessive shrinkage of cheese during the ripening or curing process, and also during the time which cheese are held for marketing purposes, especially when held from fall to spring, it is becoming the practice to dip the cheese in hot paraffine wax when about five to seven days old. This plan leaves a thin coating of wax over the whole surface of the cheese, which prevents excessive loss of moisture.

Two series of tests were made during the season of 1918, to compare the effects on weight and quality of cheese, half of which were paraffined and half not; and half of each lot were held in an ordinary curing-room at a temperature of 65 degrees to 75 degrees F., and half in an ice-cold storage at a temperature of about 40 degrees F. Part of the cheese were made in "flat" size, weighing from 33 to 46 pounds each, and part in larger size, weighing from 60 to 70 pounds each. The cheese made during the months of May and June were weighed when taken from the hoops, and weekly thereafter, for one month, and again at the end of two, and three months. The lots made in September were weighed when new, weekly for one month and again at the end of two months.

The following table gives the main points in the results of these tests:

TABLE SHOWING PER CENT. SHRINKAGE AND SCORE OF CHEESE PARAFFINED AND NON-PARAFFINED

Kind of Cheese	Place Held	Per cent. Shrinkage				Flavor (40)	Average Score of Cheese			
		2 wks.	1 mo.	2 mos.	3 mos.		Close- ness (15)	Color (15)	Tex- ture (20)	Total (100)
May and June										
Flats, paraf.....	Cold Storage..	1.6	1.9	1.9	2.4	36.7	13.7	14.	17.2	91.5
Flats, non-paraf..	Cold Storage..	2.6	3.4	3.7	5.5	36.7	13.5	13.8	16.5	90.5
Flats, paraf.....	Curing Room..	1.6	2.4	3.1	5.9	34.3	13.5	13.5	15.3	86.7
Flats, non-paraf.,	Curing Room..	2.7	4.7	4.3	8.8	34.6	13.3	13.5	16.0	86.5
Large, paraf.....	Cold Storage..	1.1	1.3	1.5	2.0	37.3	14.0	14.0	17.3	92.5
Large, non-paraf.	Cold Storage..	0.8	1.4	1.9	2.8	36.8	14.5	14.5	16.8	92.5
Large, paraf.....	Curing Room..	1.2	2.2	2.8	3.6	35.6	14.0	13.5	16.	89.3
Large, non-paraf.	Curing Room..	1.9	3.1	4.5	5.3	36.5	14.3	14.	16.	90.8
Sept. Cheese										
Flats, paraf.....	Curing Room..	2.2	2.5	2.8	.....	35.0	13.5	13.5	16.5	88.5
Flats, non-paraf..	Curing Room..	3.0	4.3	5.1	.....	35.2	13.5	13.5	16.2	88.3

NOTE.—All cheese were scored full ten points for "finish."

Conclusions: The saving of shrinkage by paraffining, on "flat" cheese made during May and June and held in cold-storage for one month, was 1.5 per cent.: for two months, 1.8 per cent.; and three months, 3.1 per cent. Similar cheese held in an ordinary curing-room, lost 4.7 per cent. in weight during one month when not paraffined and 2.4 per cent. when coated with wax.

Larger cheese made in May and June, paraffined and held in cold-storage for one month, lost 1.3 per cent.; and in three months, 2 per cent. The losses in weights for similar cheese not paraffined were 1.4 and 2.8 per cent. for one and three months. In the ordinary curing-room, the paraffined lots lost 2.2 per cent. in one month and 3.6 per cent. in three months. Similar cheese not paraffined lost 3.1 and 5.3 per cent. in weight respectively, at the end of one and three months.

Flat cheese, made in September, paraffined and held in the ordinary curing-room for one month, lost in weight 2.5 per cent.; and in two months, 2.8 per cent. Similar cheese not paraffined, lost 4.3 and 5.1 per cent. in one and two months respectively. During two weeks, the lots paraffined lost 2.2 per cent., and the non-coated, 3 per cent.

There is a very decided saving in the shrinkage of cheese as the result of paraffining, whether cheese be held in an ordinary curing-room, or in cold-storage.

There was not much difference in the quality of the cheese, whether paraffined or not paraffined, when other conditions were similar. Where there was a difference, it was in favor of the paraffined cheese in most cases. Where cheese are held for two weeks or more, either in the ordinary curing-room or in cold-storage it will pay to dip them in hot paraffine wax when made from five to seven days. This is a comparatively simple and inexpensive operation.

CREAM SEPARATOR TESTS.

EFFECT OF TEMPERATURE OF MILK SEPARATED BY BELT AND TURBINE POWER MACHINES.

Lots of milk were separated with both belt and turbine separators at temperatures between 90 degrees and 100 degrees F., between 120 degrees and 130 degrees F., between 150 degrees and 160 degrees F., and between 170 degrees and 180 degrees F. All other conditions were as nearly alike as possible. The general results were, a slight increase in capacity of the machines up to 125 degrees F., after this the capacity of the separator was slightly decreased, when the milk was heated to varying temperatures up to 173 degrees F. The percentage of fat in the cream, decreased in most cases, with an increase in the temperature of the milk at the time of separating. In the case of the belt separator, the average percentage of fat in the cream, when milk was separated at an average temperature of 96.5 degrees, was 44.6; at 124.5, the fat percentage in the cream was 43.6; at 153.7 degrees, 40.4; and at 173.5 degrees, 42.3.

The turbine, separating milk at an average temperature of 99.5 deg. F., produced cream testing an average of 34.5 per cent. fat; at 126.3 deg., the fat percentage in the cream was 34.4; at 149.8 deg., it was 30.9; and at 171 deg. the cream tested 28.2 per cent. fat.

There was a gradual decrease in the percentage of fat in the skimmilk from both machines, as the temperature of the milk was increased at the time of separating, between 90 deg. and 180 deg. F. This, however, was very slight, as both machines did good work at all the temperatures tested.

EFFECT OF PERCENTAGE OF FAT IN MILK SEPARATED WITH HAND MACHINES, ON FAT IN CREAM AND SKIMMILK.

Milks averaging 3.25 per cent. fat, produced cream with an average fat percentage of 35.45. Under similar conditions of feed, speed, temperature of milk, etc., four hand machines produced cream testing an average of 44.96 per cent. fat, when the milk separated, tested an average of 3.93 per cent. fat. The losses of fat in skimmilk averaged slightly higher when the higher testing milk was separated. These results, which need confirmation, indicate a very marked effect on the percentage of fat in cream, when the percentage of fat in the milk was increased less than three-quarters of one per cent.

EFFECT OF SPEED VARIATIONS WHEN SEPARATING MILK WITH HAND MACHINES.

One of the most important factors in separating milk with centrifugal separators is that of speed of the bowl, because centrifugal force varies as the square of the speed of the revolving bowl. Four types of machines were used in the tests. Three of these are what are known as "disc" machines, and the other as "suction-feed." The variations in speed were six revolutions of the handle per minute below, and six revolutions above, normal speed, for all the machines. Other factors such as feed, temperature of milk, etc., were constant in each case.

The results show that lowering the speed of the separator six revolutions of the handle per minute below normal, caused a small increased loss of fat in the skimmilk, with all four types of separators. Lessening the speed also decreased

the percentage of fat in the cream with the disc-type of separators from an average of 34.8 to 31.2 per cent. fat, or 3.6 per cent.; while an increase of speed to six revolutions above normal, increased the percentage of fat in the cream from these machines to an average of 38.2, or 3.4 per cent. The increases and decreases in percentage of fat in the cream, were fairly uniform at about one-half per cent. for each increase or decrease of one revolution of the handle per minute for these three machines.

In the case of the "suction-feed" separator, exactly the opposite results were obtained, as to the effect of speed on the test of the cream. At normal speed, the average percentage of fat in the cream was 43.08; at six revolutions of the handle per minute below normal, the cream tested 55.13 per cent. fat; and at six revolutions above normal, the fat in the cream averaged 39.22 per cent. This is probably accounted for by the fact that at the lower speed the capacity of the machine is reduced by about one-fourth; and the capacity is considerably increased by increasing the speed, six revolutions of the handle per minute, above normal speed.

The results of several years' work on this point, show that speed of the bowl of the separator is a very important factor in determining the percentage of fat in the cream obtained. It is therefore important to maintain, so far as possible, uniform speed throughout the run each day, and also day after day, in order not to have the percentage of fat in the cream varying, as delivered to the creamery, or other purchaser of cream.

EFFECT OF VOLUME OF FLUSHING MATERIAL USED, ON PERCENTAGE OF FAT IN THE CREAM.

Most persons, when operating a hand separator, use about the same volume of warm water or skim milk each day in order to flush the cream from the bowl of the separator at the close of a run, whether the volume of milk separated be large or small.

In order to determine the effect of using two quarts of warm water to flush the bowl after separating 50 pounds (5 gallons) milk; and also after separating 100 pounds (10 gallons) milk, several tests were made, with the results that the cream from 50 pounds of milk tested an average of 32.55 per cent. fat; and that from 100 pounds milk, tested 34.31 per cent. fat. The average fat percentage in the cream from the smaller weight of milk was reduced 1.76 by using the same volume of warm water for flushing the bowl, as was used after separating 100 pounds milk.

A similar experiment, using two quarts of skim milk for flushing, gave tests of 38.63 and 36.17 per cent. fat in the cream respectively, after separating 100 pounds and 50 pounds milk, testing an average of 3.4 per cent. fat. In this case, the reduction in test of the cream, was 2.46, by using an equal volume of skim milk for flushing the bowl after running through five gallons of whole milk, as compared with separating ten gallons.

CREAMERY BUTTER EXPERIMENTS.

PASTEURIZATION OF CREAM AT TEMPERATURES OF 140 DEG., 150 DEG., 160 DEG.
AND 170 DEG. F. FOR BUTTERMILKING.

The first pasteurizing work done in Canada, with reference to cream in a commercial way, was carried out at the Dairy Department of the O. A. College during the Dairy School term of 1896. Since then a large number of experiments have been made, in the Dairy at the College, with reference to the pasteurization of both milk and cream. Owing to the difficulty in controlling temperatures by the ordinary methods of pasteurization, we have not been altogether satisfied with the work from an investigational point of view, until the season of 1918, at which time we installed a temperature control apparatus, by means of which we were able to secure the desired temperature for any length of time.

There is considerable difference of opinion as to the best temperature for heating cream which is pasteurized for buttermaking. It is obvious that the lower the temperature and the shorter the time for holding at which good results may be obtained, the less the cost; but the cream to be made into butter held for some time must be heated to such a temperature that the butter will have "keeping quality." This can be obtained by adopting a comparatively high temperature for a short time, or a lower temperature held for a longer time. The tendency among practical buttermakers is to use a temperature of at least 170 deg. F. and hold for about ten minutes.

In the work done this past season, two lots of cream were heated to 140 deg. F., held for twenty minutes, then cooled to ripening temperature (65 deg. to 70 deg. F.) and into one lot was put ten per cent. of lactic acid culture. To the other lot no culture was added. Similar tests were made by heating cream to 150 deg., 160 deg., 170 deg. and 180 deg. F.

As these tests may be considered preliminary, we would reserve final judgment until further investigations are made. The results indicate:

1. The addition of ten per cent. culture ("starter") improved the flavor of the butter, when first made, and hence may be recommended for print trade, but did not add to the keeping quality of the butter placed in cold-storage.

2. The highest scoring butter, after holding over five months in storage at a temperature of about 40 deg. F., was made from cream heated to 160 deg. F. and having no culture added to the cream. It is fair to say, however, that the lots of cream heated to 170 deg. and 180 deg. F. were poorer in quality than were the lots heated to 160 deg. F. The butter from the lots heated to 170 deg. and 180 deg. F. held their flavor in cold storage, and were practically as good, after holding from two to three months at 40 deg. F., as when made. These lots, heated to 170 deg. and 180 deg., contained high acid (over .5 per cent.) at the time of heating and the loss of fat in the buttermilk was excessive, averaging from .5 to .8 per cent.

3. The lots of cream "neutralized" with lime water to an acidity of .3 to .4 per cent. before heating, produced butter with slightly better keeping quality though the results were not conclusive. The average score of the neutralized lots, for flavor, was 41.6 (maximum 45) when first made and 40.5 after holding for two to three months in cold-storage. The non-neutralized lots scored an average of 40.1 when fresh and 39.6 at the end of the storage period.

VARIATION IN WEIGHTS OF CREAMERY PRINTS, CUT WITH BUTTER CUTTER.

A number of creamerymen pack butter for their print trade, in a special box holding ninety pounds, and place this in cold-storage. When firm, the butter is cut with a machine into pound blocks. The blocks or prints are cut more nicely than can be done with hand printers. Both hand and machine printers do not make the prints so uniform in weight as is desired. The customer who purchases a print of butter for one pound, is entitled to receive sixteen ounces—no more, no less.

As a result of two tests made on May 28th, and two on September 13th, where four boxes or 360 blocks of butter, were cut with a machine, only 27 blocks weighed exactly sixteen ounces. One hundred and ninety-seven were less than sixteen ounces in weight, varying from one-thirty-second to eighteen thirty-seconds of an ounce under full weight. One hundred and thirty-six prints were over weight, varying from one thirty-second to twenty thirty-seconds of an ounce, on individual prints.

There is room for improvement in the uniformity of weights of butter prints cut with machines and by hand.

ICE CREAM MANUFACTURE.

On May 1st, 1918, the Canada Food Board decreed that ice-cream should contain not more than ten per cent. fat, nor more than six pounds of cane sugar in eight gallons of ice-cream.

As a result of investigations made during the month of June, the Dairy Department was able to recommend a "mix" or recipe which would meet the requirements of the the Food Board. This was sent to the press and others interested, on June 26th, 1918.

The formula for making eight imperial gallons of ice-cream is:

44.5 lbs. cream, testing 13 per cent. fat.

1.5 lbs. skimmilk powder.

6 lbs. cane sugar (1.5 lbs. sugar may be replaced with 2 lbs. cane syrup).

4 oz. vanilla extract.

8 oz. gelatin dissolved in 6 lbs. skimmilk.

The cost per gallon of ice cream, for the above ingredients, in June, 1918, was from 53 to 67 cents.

BACTERIA, YEASTS AND MOLDS IN BUTTER AND CREAM.

T. H. LUND, B.S.A., O.A.C., GUELPH.

In inviting me to address you this afternoon, your Secretary, Mr. Hearn, suggested that I should say something about the bacteriology of butter and cream.

Bacteriology is the science which deals with bacteria. It is a comparatively new science, as sciences go, having been built up chiefly within the last 40 or 50 years; a science showing remarkable achievements in the past and pregnant with possibilities for the future.

When the average person thinks of bacteria, germs or microbes, it is usually in connection with disease. Fortunately for us disease-producing, or pathogenic bacteria, as they are called, form a very small proportion of the organisms at work

around us, yet these few have gained unenviable notoriety through the manner in which they manifest their activities, namely, in attacking and frequently killing both animals and man.

Of medical bacteriology I shall say little. Brains and money without stint have been pressed into the service of humanity to investigate and solve, if possible, the many difficult problems arising in this field. Something of the successes achieved is known to every intelligent person and where failure up to the present time has to be recorded, it is altogether probable that further investigation and research will bring to light the facts necessary to enable bacteriologists to bring under control some of the diseases which at the present time stalk the world at their own sweet will.

Agricultural bacteriology, and the application of its findings to certain agricultural industries on this continent, is a development of the last 20 years. In dairy operations, bacteria and other microscopic organisms play an all important part, and no cheese or buttermaker is considered properly equipped for his business now-a-days unless he has studied the elements of this science, learning something of what bacteria are, where they come from, how they live and die, and what they do.

In the field of dairy investigation and research something has already been accomplished, but much yet remains to be done. Our knowledge of certain processes is still obscure, and we need more light in these dark corners to show us the way and to explain things which at the present time we do not fully understand. As in the field of medicine, it is only by applying brains and money to scientific research work that the dairymen may expect to get their own particular problems solved. Never was there a greater need for this than at the present time when efficiency and economy are so necessary to enable us to meet competition and at the same time to make our business pay.

Another pressing necessity is the more general application of scientific findings, already well established, to every day operations in and around our creameries, cheese factories and dairy farms.

Take for example the cooling of cream. It is a well-known fact that a better quality of butter can be made from properly-cooled cream than from cream not so cooled, yet the average temperatures of cream reported last year by the instructors were 66.1 deg. F. for 1st grade cream and 72.7 deg. F. for 2nd grade cream, showing to what a small extent cream is properly cooled. Such temperatures as these are used by buttermakers and cheesemakers in preparing their lactic starters where an active development of germ life is required. Our largest bacteriological incubator at the College, into which we put our cultures to make them grow, is run at a temperature slightly higher than the second of these. There is little doubt that a marked improvement in the quality of Ontario creamery butter will follow just as soon as creamery patrons as a whole take steps to properly cool their cream.

Little has yet been done in Canada in the way of controlling practical dairy operations by laboratory methods. A few of the larger city milk companies employ trained men to keep track of the bacterial content of milk received, to check up the bacterial efficiency of their pasteurizing apparatus, and also to see that cans, bottles, pipes, pumps, vats, etc., are thoroughly, that is to say, bacteriologically clean. Several of our former students are engaged in work of this kind. The consuming public are coming more and more to demand clean milk, free from disease germs, that is to say, milk of a reasonably low bacterial content, and milk which has been properly pasteurized and protected from recontamination afterwards. Because of the reasonableness of these demands and their relation to the

public health, certain Canadian cities exercise bacteriological control over all milk sold within their limits. The concern that is in a position to supply what the public demands is the one that gets the business every time. I look to see a considerable expansion in this line of work in the near future, as the quality of the milk supply of many of our smaller towns and cities might with advantage be considerably improved.

With regard to buttermaking, it is only quite recently that creamerymen have begun to take any interest in laboratory control of the processes carried on by them. Especially in plants where pasteurization is practiced, buttermakers are beginning to ask themselves whether the work is being efficiently done. As the chief aim and object of pasteurization is the destruction of germ life in the cream it stands to reason that if the process is to be effective, the majority of the germs must be destroyed. In so far as this is not accomplished, the process is inefficient; we are wasting time and money, only half doing a job which to be effective must be thoroughly done, and fooling ourselves and the public besides.

The question of recontamination of pasteurized cream has also to be taken into serious consideration. It may occur in a number of different ways, neutralizing to a greater or less extent, the beneficial effect of pasteurization, at least so far as the germ life in the cream is concerned. If it is important that the cream should be pasteurized thoroughly, it is just as important to see that recontamination does not occur. It is only by making cultural tests of the cream for bacteria, yeasts and molds at different stages of its journey from the farmer's can, to, and into, the churn, and of the finished butter, that one can find out the efficiency in regard to these points with which the plant is being run.

While bacteriology is the science which deals with bacteria, there are other microscopic organisms that are of considerable interest and importance in dairy work, namely, the yeasts and molds. These are studied by much the same methods as are used in the study of bacteria, and so it happens that the bacteriologist has taken them to some extent, under his wing. It has been suggested that the term "Microbiology" be used to describe the science now known as "Bacteriology," that is to say, the science which deals with microscopic life; this would include the yeasts and molds as well as the bacteria, all three being classified as plants, the protozoa which belong to the animal kingdom, and also the invisible organisms which we are practically certain exist, but which are so small that the most powerful microscope does not reveal them to the eye.

Let us now summarize some of the things we know about bacteria, yeasts and molds, noting the differences between them, and learning something of the numbers in which they are found in cream and butter, what they do, and to what extent they can be controlled.

(The speaker then with the aid of diagrams described the differences between bacteria, yeasts and molds, noting the shape, size, arrangement, method of reproduction, spore formation, etc., and the relative ease with which these different forms are destroyed.)

Now let us learn something of the numbers in which they are found in cream. (Table No. 1.) These figures (Tables Nos. 1, 3, 4 & 5,) were secured in an investigation carried out at the Indiana Experiment Station. We note at once the high numbers of organisms present per c.c., very many more than would be found in the milk from which this cream came. The bacterial content of good milk will run from 5,000 to 50,000 per c.c., milk of medium quality from 50,000 to 500,000 per c.c., dirty, old and improperly cooled milk will show several million

per c.c., while here we have an average of 215 million bacteria per c.c., and $3\frac{1}{4}$ million yeasts and molds. How do we account for this enormous increase and what does it mean? It means that some of the organisms originally present in the cream have found themselves in an environment so much to their liking that they have grown and multiplied rapidly, producing in a short time numbers such as these.

This is known as a fermentation (from the Latin, *fervere*, to boil,) and it is fermented or partly fermented cream which we are receiving at our cream-collecting creameries to-day, that is to say, cream in which bacterial development has progressed to a marked degree.

Let us glance for a minute at what takes place in sterile milk held at a favorable temperature after being inoculated with a lactic acid culture, as is done in preparing starters. (Table No. 2, Data by B. W. Hammer, Iowa Experiment Station.) Here we see a rapid increase in the number of bacteria and also a slight increase in acidity in 14 hours. If this experiment had been continued, we should probably have had from 1 to $1\frac{1}{2}$ billion bacteria and an acidity of .6—.7 per cent. at the end of 24 hours. It is a change somewhat similar to this that has been progressing more slowly in the cream.

What we are chiefly interested in, however, is not so much the numbers of organisms present as it is the question of what they do. If they bring about any changes in the cream, we want to know whether these changes are beneficial or injurious, and whether it is advisable to encourage the growth of the organisms causing them, or whether it is better that they should be controlled or destroyed.

Here (Iowa Experiment) we have a pure culture of lactic acid bacteria bringing about a true lactic acid fermentation, the one and only beneficial fermentation from the buttermakers' point of view. In the whole milk creamery, the buttermaker inoculates the fresh, sweet cream with a culture of this kind, thus controlling the fermentation from the start and everything is well. Unfortunately, in collected cream, the fermentation is usually well advanced when it reaches the creamery, and what is more, it is usually a mixed fermentation, that is to say, other bacteria besides the beneficial lactic acid bacteria have been taking a hand and these frequently have produced changes in the cream of an undesirable kind. Dirty cows, dirty hands, unclean utensils, dust, flies, etc., all add their quota of injuries bacteria to milk and cream, and lack of prompt and thorough cooling aggravates the trouble by causing them to grow and multiply rapidly. The extent of the changes produced by the growth of these undesirable organisms determines chiefly the quality of the cream, and cream quality and butter quality go hand in hand, hence the introduction of cream grading to encourage the production of clean, sweet and well-cooled cream, that is to say, cream in which bacterial development has not occurred to any marked degree. The buttermaker no longer has control of the fermentation as of old, he has to take what he gets as he gets it, and patch up the damage as best he can. Some day perhaps, cream will be delivered to the creameries sweet and clean. The fact that 41 creameries in Iowa during the past season, in making butter for the U. S. Navy, have handled only cream of this kind, proves that it can be done.

This brings us to the question of pasteurization, a subject which should be of very great interest to every creameryman, particularly as the advisability of enforcing compulsory pasteurization of all milk or cream being manufactured into butter is under serious consideration in dairy circles just now.

You have before you the resolution on this subject, passed at the recent Dominion Dairy Conference, and this should indicate, to those who have not yet

adopted this method for handling their cream, the way the wind blows. Let them get busy and look into the matter thoroughly and see if there is not something in it for them after all.

Also you have the recommendation of a special committee, appointed by the same Conference, to report on commercial grades and grading of dairy produce, that official grade certificate shall be issued only on butter made from effectively pasteurized cream. There is little doubt that this recommendation will be enforced in Ontario in the case of the "Special" grade.

When we come to consider pasteurization we must look at it from several points of view. First, there is the question of transmission of disease germs, to human beings through the butter, and to the livestock on the farm through skimmilk and buttermilk. To many people the chief advantage of pasteurization is the elimination of such dangers as these. The tubercle bacillus has been repeatedly isolated from butter, even after storage at low temperatures for as long as six months. Little is known about definite infections due to the consumption of butter containing tuberculosis germs. To safeguard the public against danger from this source, the U. S. Department of Agriculture requires that dairy products used in the manufacture of oleomargarine shall be effectively pasteurized (145 deg. F. for 30 minutes or 180 deg. F. flash); automatic temperature control with reliable recording thermometer is required, and temperature charts for inspection have to be filed.

In discussing the subject of compulsory pasteurization recently at the Iowa Buttermakers' Convention, Prof. Mortensen of Ames said: "It is not difficult to see that some of us have been napping, and the sooner we wake up the better it will be for the dairy industry of our state. There is no doubt in my mind but that most of the butter produced in our local creameries is the finest and purest butter made anywhere. In spite of that, however, we must give the consumer full assurance that our butter is manufactured in accordance with the principles of modern science and such assurance cannot be given them if we disregard pasteurization." This applies equally also to us in Ontario and should set us thinking along this line.

With regard to the transmission of disease through creamery by-products, tuberculosis is again our chief concern. Dr. Torrance, Veterinary Director-General, has lately called attention to the marked increase during recent years of tuberculosis among swine, particularly among those coming from the dairy districts, due undoubtedly to a large extent to the feeding of infected dairy by-products, including buttermilk from unpasteurized cream. He recommends that the pasteurization of all dairy by-products should be made compulsory. If this recommendation is adopted all cream-collecting creameries will have to pasteurize their cream.

Secondly, pasteurization is beneficial in driving off, to some extent at least, taints absorbed from undesirable surroundings, and volatile substances produced by germ activity. It is impossible to measure the extent to which this takes place, but there is little doubt that the lower grades of cream are benefited in this way.

Thirdly, we must consider enzyme destruction and the germicidal effect of pasteurization on the non-pathogenic microorganisms in the cream, and the relation of these to butter flavor and keeping quality.

As I said earlier, the chief aim and object of pasteurization is the destruction of germ life in cream. Let us examine the figures in Table No. 3 and see what laboratory counts show. Pasteurization at 145 deg. F. for 20 minutes, in the case of 33 lots of cream showed an efficiency of between 99.8 per cent. and 99.9 per cent. that is to say, that 998 and 999 germs out of every 1000 were destroyed. At 185 deg. F. flash, the efficiency figures out at 98.9 per cent. to 99.0 per cent. while at

165 deg. F. flash, it runs from 86.2 per cent. for yeasts and molds, and 89.8 per cent. for total count. While efficiency percentages do not tell us the whole story, this test has demonstrated that germ destruction is very complete in the case of cream pasteurized for 20 minutes at 145 deg. F. and only slightly less so when "flashed" at 185 deg. F. It also shows that 165 deg. F. flash, is unsatisfactory from a germ-killing standpoint as about 10 per cent. of the germs present in the cream survive; if the cream were held at this temperature for 10 minutes, it is probable that the germicidal efficiency would work out about the same as in the other two cases.

The study of the relation of microbial activity to butter flavor and keeping quality divides itself naturally into two parts: we concern ourselves with what goes on in the butter on the one hand, and on the other, with the nature and extent of the changes which take place in the cream. We have already referred to acid formation by the desirable lactic acid bacteria, but even this is frequently allowed to proceed too far, and fishy and metallic flavors are likely to develop in the butter made from high acid or overripe cream. The work of Rogers at Washington has demonstrated the superior keeping quality of butter made from sweet pasteurized cream. Injurious flavors and other by-products of undesirable organisms are not necessarily destroyed by pasteurization, and undoubtedly they are important factors in many cases of poor flavor and keeping quality, due to conditions obtaining in the cream. If we would seek to improve the quality of Ontario butter to any marked extent, while the more general adoption of pasteurization will undoubtedly help, eventually we shall have to go to the source of the trouble and take steps to improve the quality of the general run of cream.

Some idea of the number of organisms found in raw and pasteurized cream butter may be got by a perusal of Tables Nos. 4 and 5. We note the large number present in the raw cream butter and many less in the pasteurized cream butter, depending on the temperature used. While the number of bacteria found in pasteurized cream butter will vary considerably, depending on the amount of starter used, the addition of starter, unless it is contaminated, will not increase the count of the yeasts and molds. Owing to this fact, it is possible to use the yeast and mold count of butter to check up the efficiency with which creamery pasteurizers are being operated and to determine to what extent pasteurized cream becomes contaminated again before it is churned. We shall return to this subject shortly, but in the meantime the yeast and mold counts on these two tables give you some idea of what you may expect to find.

Whether pasteurization of cream improves the flavor of butter or not is a matter of controversy. The different qualities of cream handled and methods of pasteurization and ripening employed may easily account for the differences of opinion on this point that we find recorded from time to time. With regard to the deterioration in storage of butter made from pasteurized cream as compared with that made from raw cream, it is generally recognized now that the keeping quality of butter is considerably improved by pasteurizing the cream. Just how to account for this we do not know, but it is probable that, besides germ destruction, other factors are involved. Butter made from cream pasteurized by the holding process at the lower temperatures, even when the efficiency is high, does not keep as well in storage, according to the experience of numerous observers as butter made from pasteurized cream where temperatures from 170 deg. F. to 185 deg. F. have been used. This is explained by some on the basis of enzyme action, the enzymes present in the cream being unaffected at the lower temperatures, while at the higher temperatures the great majority of them are destroyed.

There has been considerable discussion of enzymes lately, so it may be well to say a little about them now. Enzymes, or ferments as they are sometimes called, are a complex class of substances, widely distributed in nature, and essential to vital activity in a number of different ways. While it is difficult to define an enzyme (a chemist will tell you that an enzyme is a biochemical catalyst) their general properties are pretty well known. In the first place they are able to produce, even when present in very small amounts, very large effects without themselves undergoing any permanent change, or having their own matter disappear. In the second place they are very sensitive to physical and chemical conditions, losing their activity rapidly at temperatures above 160 deg. F. Their other properties we need not refer to here. Enzymes are formed by living organisms, in some cases they are retained in the animal or plant cell where formed, whilst in others they are passed out into the surrounding medium as required. The former were at one time known as "organized" ferments and the latter as "unorganized" ferments, this however was an artificial distinction which further knowledge of them has broken down. Rennet and pepsin, both engaged in digestive processes, are two enzymes which are well known to you all.

Milk contains certain enzymes, for example, peroxidase, reductase, catalase, etc., and it is to substances such as these that people refer when they speak of there being "life" in milk. Storch has made use of a test for peroxidase in milk to determine whether or not, milk has been heated above a certain temperature; this is a color reaction and it is found that if the milk has been heated to a sufficiently high temperature to destroy the peroxidase, when the reagents are added no change of color occurs, but if, on the other hand, the peroxidase has not been destroyed, the addition of the reagents causes the milk to turn a greyish-blue. This is known as the "Storch test," and the critical temperature for this reaction in milk is around 176 deg. F. when heated momentarily, and somewhat lower when the holding process is used, one investigator reporting 167 deg. F. when held for twenty minutes and 158 deg. F. when held for one hour.

Small quantities of the enzymes naturally present in fresh milk, pass into the cream and also into the butter, if the cream from which it is made is unpasteurized. Thus we find the Storch test being applied to butter in some of the western Provinces, to determine if it has been made from pasteurized cream. The critical temperature in this case, appears to be between 160 deg. F. and 164 deg. F. for vat pasteurization, depending on the rapidity with which the temperature is raised, length of holding period, and the rapidity with which the cream is cooled. Enzymes other than peroxidase may require for their destruction, temperatures varying to some extent from these.

Besides these enzymes, at times we have others, possibly in considerable quantity in cream and so in unpasteurized cream butter, produced by the activities of bacteria, yeasts and molds. Their determination is a matter of difficulty and we know less about them than about the living cells from which they come. We know that the higher pasteurizing temperatures destroy most of them and that a temperature of 145 deg. F. for 20 minutes does not. Their relation to keeping quality has already been hinted at, also the desirability of handling cream in which they have not been generated to any large extent, that is to say, fresh, clean, sweet cream.

Once the butter is made, the bacteria, yeasts and molds usually find conditions much less favorable to their activities and even to their existence than was the case when they were in the cream. They usually die off fairly rapidly,

although at times certain species may grow and multiply. When the cell dies and disintegrates, enclosed enzymes are liberated; this fact may have some connection with butter spoilage, particularly in the case of raw cream butter where the bacterial content, as we have noted, is high. Occasionally, particularly in the case of unsalted butter, we find an active mold growth in progress, usually working inwards from the outside. Destruction of mold spores is part of every buttermaker's business, as the butter or its immediate surroundings must be infected with living spores before molding can occur.

During the latter part of the past season, some preliminary tests were made to determine the yeast and mold content of several boxes of butter, sent by various Ontario creameries to the grading station at Toronto. It was felt that our knowledge of this subject was limited and might, with advantage, be improved; it was also our desire to find out whether the yeast and mold content of a box of butter would give us any indication as to whether it had been made from raw or pasteurized cream. It was realized that some such test would be necessary in connection with the issuance of grade certificates, if the policy were adopted of issuing them only on butter made from effectively pasteurized cream. Twenty-two boxes of butter in all, representing the make of eleven Ontario creameries, were examined. Five of these creameries, from which 10 boxes came, pasteurized their cream, while six creameries, which contributed 12 boxes to the test, churned their cream raw, with the exception of one, where the cream was warmed up by the flash method, to between 120 deg. and 130 deg. F. Details of the method used will be found in the report of the Dominion Dairy Conference, held at Ottawa, Nov. 25th to 28th, 1918. Tables Nos. 6 and 7 show the yeast and mold counts that were obtained.

Commenting on the results of this test there are several things we may note:

1. There is a marked variation in the yeast and mold content of butter made from the different creameries, and of different lots of butter from the same creamery.

2. That the raw cream butter from four creameries contains large numbers of yeasts and molds.

3. That the raw cream butter from two creameries contains a markedly smaller number of yeasts and molds. This is probably due to the smaller proportion of old, sour cream received.

4. That the pasteurized cream butter shows an exceptionally low mold count as compared with the raw cream butter, while the difference in the yeast count is not nearly so marked on the whole.

5. That the high yeast count of the pasteurized cream butter indicates inefficient pasteurization, or marked recontamination between the pasteurizer and the finished package.

6. That 120 deg.—130 deg. F. flash has no germicidal effect on the yeasts and molds in the cream. Possibly it stimulates dormant cells to grow and multiply, thereby aggravating the trouble one is usually striving to avoid.

As to the possibility of using the yeast and mold count as a test for effective pasteurization, the figures obtained in this investigation seem to indicate it may be of use for this purpose. Possibly in whole-milk creameries, low counts would indicate pasteurization when the process has not been employed, but unfortunately whole-milk creameries are conspicuous by their absence, in Ontario, to-day. On the other hand, high counts might indicate non-pasteurization where the cream had in reality been pasteurized, but due to inefficient operation, numerous germs

had survived, or else by recontamination, the mold and yeast content of even effectively pasteurized cream had been increased considerably before the butter was made. Butter made from cream handled in such a way is not entitled to be classed as pasteurized cream butter; the line has to be drawn somewhere and the interests of the consumer have to be considered besides.

Why not use the Storch test as in the West, some of you possibly say. The weakness of the Storch test, to my mind, for this purpose, is that it is positive or negative only, and not one of degree, while the yeast and mold count puts the records on a numerical basis, although it may not be quite so simple to apply. It has the added advantage, which seems to me to be a most valuable point in its favor in butter inspection work of this kind, in that it shows up inefficient methods and abnormal conditions when they exist in the creamery, allowing a remedy to be sought without delay. The Storch test, on the other hand, can do nothing of this kind.

The mold (*Oidium lactis*), which was the only one found in large numbers in all these cultures, is comparatively easily destroyed; 130 deg. F. for 30 minutes or 135 deg. F. for 10 minutes, practically eliminating it from sour cream. Yeasts are found to be somewhat more resistant to heat, but few survive an exposure of 145 deg. F. for 30 minutes in sour cream. This latter exposure is about what is recommended for the purpose of destroying disease germs in milk and cream, yet butter made from such cream would probably be classified as unpasteurized, if the Storch test were used. Again, such an exposure is effective in destroying the majority of the non-pathogenic bacteria, as the figures I have previously given you show, and it is a question whether further heating of the cream is necessary where the butter goes into immediate consumption, resulting, where the lower temperature is used, in the saving of a considerable amount of water and steam.

Not much is known concerning the relation of yeasts and molds to butter flavor and keeping quality, although Combs and Eckles, of the Missouri Station, have recently shown the injurious effect produced by the growth of *Oidium lactis* and other molds in the cream. While butter containing numerous yeasts and molds may give good commercial satisfaction at times, as some of our work has shown, nevertheless, the larger creameries are coming to recognize the fact that butter with a low mold and yeast content, indicating efficient pasteurization and use of sanitary methods preventing recontamination, is a better risk on the whole than butter made in a less efficient way.

I have discussed this matter at some length with the idea of stimulating the interest of Ontario buttermakers and creamerymen in problems of this kind. We know that chemical and physical factors are also involved in butter spoilage but those subjects do not come within the scope of my talk to-day.

It is our intention to carry on and expand, if possible, this line of work during the coming season, depending upon the time at our disposal, the facilities to hand, and the interest shown in the matter by the creamerymen. Many of the larger creameries across the line are getting mold and yeast tests of their butter made regularly, and when we know that by strictly efficient and sanitary methods they are able to keep the count down to ten per c.c. we must realize that the figures reported here, plainly show that we can well afford to take more interest in matters of this kind.

TABLE I.—BACTERIA, YEASTS AND MOLDS IN CREAM.

Sour, farm-skimmed cream as received at creamery, average of 33 lots.

Bacteria.....	215,000,000*	Average	Yeasts and Molds.	3,300,000	Average
“	575,000,000	Maximum	“ “ .	47,000,000	Maximum
“	13,000,000	Minimum	“ “ .	15,000	Minimum

* Figures indicate germs per cubic centimeter of cream.

TABLE II.—LACTIC ACID FERMENTATION OF MILK.

Hours	Bacteria per c.c.	Acidity
2	830,000	.16
4	3,900,000	.16
6	26,900,000	.16
8	116,000,000	.18
10	175,000,000	.20
12	250,000,000	.22
14	460,000,000	.24

TABLE III.—MICROORGANISMS IN RAW AND PASTEURIZED CREAM.

Average of 33 lots of each.

—	—	Total	Yeasts and Molds
Raw Cream.....	.....	209,714,285*	4,032,000
Pasteurized Cream.....	145° F. 20 minutes	113,574	2,201
	165° F. flash.....	14,768,000	197,911
	185° F. flash	1,416,029	16,782

* Figures indicate germs per cubic centimeter of cream.

TABLE IV.—BACTERIA, YEASTS AND MOLDS IN BUTTER.

Raw, sour, farm-skimmed cream. Ten per cent. starter added. Average of 33 lots.

Bacteria.....	20,000,000*	Average	Yeasts and Molds.	224,000	Average
“	210,000,000	Maximum	“ “ .	1,300,000	Maximum
“	1,000,000	Minimum	“ “ .	900	Minimum

* Figures indicate germs per gram of butter.

TABLE V.—BACTERIA, YEASTS AND MOLDS IN BUTTER.

Pasteurized, sour, farm-skimmed cream. Ten per cent starter added. Average of 33 lots in each case.

—	Bacteria	Yeasts and Molds	—
145° F. 20 minutes.....	250,000* 1,350,000 3,000	900 10,000 0	Average Maximum Minimum
165° F. flash	1,700,000 12,000,000 40,000	16,000 250,000 50	Average Maximum Minimum
185° F. flash	750,000 4,000,000 10,000	3,700 32,500 0	Average Maximum Minimum

* Figures indicate germs per gram of butter.

TABLE VI.—BUTTER FROM UNPASTEURIZED CREAM.

Sample Number	Creamery	Age of Butter in days	Molds per c.c.	Yeasts per c.c.
B 14	A	22	1,900	2,500
B 19	A	16	1,500	1,200
B 5	B	22	1,800	1,500
B 6	D	18	50	700
B 4	F	53	10	350
B 22	F	8	80	400
B 1	G	6	7,000	.....
B 15	G	64	1,800	1,200
B 9	G	8	2,800	3,000
B 23	G	8	2,400	700
B 17	K	18	2,000	1,800
B 27	K	16	1,100	4,000
Average (exclud- ing B 4).....			2,039	1,700

NOTE.—At creamery G cream was warmed up to between 120° and 130° F. by the flash method.

Creamery D. remarks "cream not overly sour."

TABLE VII.—BUTTER FROM PASTEURIZED CREAM.

Sample Number	Creamery	Age of Butter in days	Molds per c.c.	Yeasts per c.c.
B 3	C	12	4	5,000,000
B 8	C	6	0	500
B 20	C	7	1	5,000
B 2	E	8	10	300
B 21	E	15	2	2,200
B 18	H	18	7	800
B 25	H	5	110	300
B 24	I	16	3	60
B 16	J	21	3	300
B 26	J	12	9	.....
Average.....			15	1,182*
Average (exclud- ing B 25).....			4.3	

* Excluding sample B 3.

Details of Pasteurization:

Creamery C.	160° for 10 minutes.
" E.	170° flash.
" H.	170° for 10 minutes.
" I.	170° flash.
" J.	145° for 30 minutes.

NOTE.—No starter used in any of these five creameries.

SOME ECONOMIES IN THE DAIRYING INDUSTRY.

J. A. RUDDICK, DAIRY COMMISSIONER, OTTAWA.

It is like coming home for me to attend a meeting in this part of Ontario, because, as some of you know, I was born and spent the first fifteen years of my life not far from this city, where my father and mother still reside. As a dairyman, I take some pride in the fact that I am a native of Oxford, the banner dairying county of this broad Dominion.

During the past summer, it was my good fortune, through the kindness of Mr. Hens, to have a motor trip through some of the best cheese producing districts of western Ontario. It was some years since I had been through the country except by rail, and many of the roads over which we travelled, were entirely new to me. I can only say, that after having seen Canada from one end to the other, and also a large part of the United States, it is my firm conviction that there is not a better and more successful mixed farming district on this continent, or one in which there are so many fine farm homes as there are to be found in these central counties of western Ontario, where dairying is the principal occupation of the people. One cannot help noticing that those districts where dairying has been most intensely followed, are the ones in which you will find the greatest evidence of prosperity,—better buildings, better houses, more up to date equipment, than in any other part of the country. I cannot conceive of a more convincing experience in favor of the dairying industry than a visit to these sections which I have spoken of.

Of course I know that speakers are always inclined to flatter their audiences, but in this case, those who are familiar with the country, and in a position to make comparisons, will know that I am stating nothing more than the truth.

(Reference was here made to the production and export of cheese and butter.

We should get over the habit of assuming that the dairy industry is declining simply because we are making less cheese or less butter, or selling more than the usual number of cows in any particular district. A friend of mine, who is interested in the export trade, was lamenting a few days ago over the large number of "canners" that were passing through the stock yards at Montreal. I told him I was very glad to hear it. The more of these cows that go to the butcher the better it is for the industry, and I take it as an evidence of progress rather than a sign of decline.

We should also guard against being carried away by the attraction of big figures. It is of no importance that we produce \$200,000,000 worth of dairy products in the year, unless the individual farmer is getting a fair share of profit out of it.

I am glad to know that the improvement in dairy herds continues to show good progress. The average yield per cow has been increased by at least 25 per

cent. during the last ten years. That is where our increase in production is coming from largely, and where those who keep their eyes on the number of cows in the country are being deceived. This increase is largely the result of disposing of the unprofitable cows.

I hope that from this time forward, the labor conditions in connection with the production of milk will be easier, and that farmers and their families will be relieved to some extent at least of the hard work which has attended the production of milk during these strenuous years just passed.

Probably the most important dairy event of the year, was the Dominion Dairy Conference held at Ottawa, November 25th to 28th, under the auspices of the dairy branch. The different associations representing the dairying industry throughout the Dominion were invited to name delegates, and when these names were received a formal invitation was sent to each one. Others were invited on account of their official positions. The total number of delegates was 61.

One of the chief objects in calling the conference, was to give the dairymen of Canada an opportunity to organize a National Dairy Council. It was not the intention of the Dominion Government, nor is it the desire of the National Dairy Council, that this movement shall be dependent on a Government grant, but it was felt that some initial expense on the part of the Government to permit of the organization being started, was quite permissible.

The organization of the National Dairy Council, so far as it could be promoted at the Ottawa conference, was fully carried out, and thus the first object of the conference was attained. It now remains for the local associations to confirm the action of their delegates, and to adhere to the programme laid down.

Another very important matter was the consideration of legal standards for milk and its products, and also commercial grades and grading of dairy products. After discussion, a committee was appointed and a report brought down, which was adopted unanimously by the conference. Thus the second object was attained.

There were discussions relating to the pasteurization of cream for butter-making, and what will be of greater interest to live stock men, a resolution was unanimously passed, asking for the compulsory pasteurization of all dairy by-products.

Many other subjects were dealt with, and anyone who would like more details will find them in the verbatim report which will be issued shortly, and which may be obtained on application to the Dairy Commissioner, Ottawa.

The delegates to this conference were the best working body of men that I ever saw come together in Canada in connection with any agricultural interest, and that is the general opinion of those who saw anything of the conference.

I trust, now that the matter of confirming the provisional organization is up to the provincial associations, that no time will be lost in completing the work which was so well begun at Ottawa. It may be advisable to carry out some reorganization in some of the provincial associations, before the plan of the National Dairy Council can be completed.

I am very much in favor of the suggestion to have one general association in each province to cover all lines of dairy activity. Such an association would have separate sections to deal specifically with various branches of the industry. For instance, if you had a general dairymen's association for the province of Ontario there could be an eastern and a western Ontario section, or a cheese section, a butter section, a milk producers' section, a milk distributors' section, an ice cream manufacturers' section, a milk condensing section, and so on. It would,

in effect, be a union of all the existing associations and any others that may be organized in the future. A body of this kind acting together, on questions affecting the industry as a whole, would have much greater influence and be very much more effective than a number of associations acting independently and without co-ordination.

Now that the war is practically over, everybody is talking reconstruction, but I do not think that somewhat overworked term need be applied to the dairying industry. There has been very little interruption or disturbance of the industry during the war, and it will flourish in the future just as it has in the past. The dairy industry has nothing to fear in the days which we are facing, and there is no need for misgivings and doubt as there may be in some other lines of industry. It is the opinion of everyone who has pretended to study the situation, that the dairy farmer has better prospects of receiving good prices for his products for a longer time ahead than the producer of almost any other farm crop.

No doubt many of you would like to know how the export trade in butter and cheese will be handled during the coming season. The Dairy Produce Commission, of which I am a member, has no information on this point. We have had no advice as to what the British Ministry of Food proposes to do. Most likely they do not know themselves. Everyone is anxious to get back to the accustomed channels of trading as soon as possible, but that may not be as easy as it looks. Owing to the great scarcity of dairy products it may be necessary to continue some measure of control and distribution in the Old Country in order to prevent the supply all going to those whose purses are long enough to take it away from others of limited means. The ration at present is only one ounce of butter per week, and there is doubt if even that can be continued for civilians. As long as control and rationing continues in the United Kingdom, it is quite probable that the authorities there may desire to handle the purchase at this end on similar lines to those followed during the past two seasons. This is only my opinion, however, and I may be wrong in my surmises. Of one thing you can be assured, and it is this, that the British Ministry of Food realizes that in order to encourage the large production necessary to restore a reasonable balance of supply and demand, high prices must be maintained. They do not want low prices under the circumstances. They have always shown a desire to be fair and reasonable in these matters, and you need have no misgivings on that point.

I have taken so much time with these rambling preliminary remarks, that I fear there is very little left for the topic which appears in the programme opposite my name, namely "Some Needed Economies in the Cheese Industry." There are, however, one or two matters which I shall refer to very briefly. The high prices for apparatus and supplies, the high cost of labor, etc., has made the matter of economy in the management of cheese and butter factories a very much more important matter than it was a few years ago. Much of the standard equipment was designed under very different conditions to those which exist to-day. I believe it would be possible to effect a very considerable saving in many directions. In this respect, we might take a lesson from our Danish friends and the methods which they have followed in reducing costs of manufacture. The success of the dairying industry in Denmark is due as much, if not more, to the thriftiness of the people and to careful management, as it is to the high quality of the output.

One of the useful institutions in Denmark is the Bureau for Creamery Statistics, under the auspices of the Danish Co-operative Creamery Association. This Bureau, established in 1898, collects statistics on the cost of fuel and other

expenses in connection with the manufacture of butter. At first a great variation was found in the cost of fuel at different creameries. A mechanical and engineering expert is employed to advise creamerymen in the matter of the installation and the economical operation of steam boilers and engines, and a very big saving has been effected in the cost of fuel. The same sort of thing has been done in many other lines.

It would be a very easy matter for this association to collect statistics as to the cost of fuel per pound of cheese manufactured in the factories belonging to the association. A comparison of the cost in different factories would lead to investigation on the part of those whose costs were much higher than others. The same method of investigation could be applied to other costs. This, it seems to me, is a line of work which the Dairymen's Association of Western Ontario might very well take up. If you appoint a committee to deal with this subject and report at the next convention, you may count on the hearty co-operation of the dairy branch at Ottawa in carrying out the investigations.

The Dairy Division recently undertook to conduct some tests at the Finch Dairy Station as to the saving effected by using cold feed water as against water heated by the exhaust from the engine. We have not secured sufficient data from which to draw definite conclusions, but the tests made would indicate that there is a saving when using water heated by the exhaust steam, the heat from which would otherwise be wasted, amounting to over 15 per cent., and in some cases more than double that much. In a large factory, this would be an important saving during the year, effected at a very small cost, by the installation of a tank in which water is heated by having the exhaust from the engine passing through it. This tank also supplies hot water for washing and other purposes in the factory. We have found a great saving in the use of this device at the Finch Dairy Station. We propose to follow up this line of investigation by covering different methods of boiler feeding.

One might go on to discuss the importance of keeping a boiler clean, both inside and in the flues, of having arches properly constructed, and of having sufficient draft to secure good combustion, the relation of grate area to heating surface, and even the kind of grate to use for different fuels, but we shall pass on to one other matter before concluding.

The increased cost of tinned sheets for the manufacture of cheese vats, cream vats, etc., makes the care of such apparatus a much more important matter than it has been hitherto. A great many cheese vats are used up in half the time they would have been if proper care had been taken to prevent unnecessary rusting, or other damage. It is important in the first place, that a cheese vat should be cleaned as soon as possible, as the strong acid of the whey has some corroding effect on the tin. To my mind, one of the strongest arguments in favor of the use of the curd sink, is that it permits the vat to be cleaned earlier in the day, and the vat is not exposed to the action of salt which is put on the curd, or to damage caused by forks and other utensils used in handling the curd. I have always been rather in favor of completing the process in the vat, or at least on racks in the vats, as against the use of the sink for small factories, but if the present cost of cheese vats is to continue, it is worth while considering the use of the curd sink, even in small factories, for the sake of saving the cheese vat. When a cheese vat is out of commission for the season, it should be thoroughly greased with some non-drying oil or fat, such as lard or cheap vaseline, turned upside down and the bottom painted, so as to prevent rust both inside and out.

It is worth while making sure also that the steam pipe under the pan is of galvanized iron and not ordinary black iron, as there will be very much less rusting of the vat where galvanized pipes are used.

With the cost of labor increasing all the time, machinery and other devices for the saving of labor, becomes more important. We shall have to pay more attention to the planning of our factories so as to avoid unnecessary steps or unnecessary handling, and thus reduce the labor to the lowest possible minimum. In the eastern part of the province, there could be a very great saving of labor by combining a number of factories in many localities, but that is another matter and it is bound up to some extent, with the question of good roads.

I have not attempted to go into these matters in any detail. My object is rather to draw attention to them with a view of having some organized effort made to study the problems involved, so that the possibilities of economies in the dairying industry may be brought definitely to the notice of all concerned.

THE NATIONAL DAIRY COUNCIL OF CANADA.

A National Dairy Council, representative of the whole Dominion, was formed as a result of a Dominion Dairy Conference called at the direction of the Federal Minister of Agriculture and held in Ottawa on November 25 to 28, 1918.

A report of the above conference, including an outline of basis of organization adopted for National Dairy Council, can be secured by writing to the Dairy Division, Dominion Department of Agriculture, Ottawa.

Instead of reporting the references to the Council made by several speakers at the Annual Conventions of the Eastern and Western Ontario Dairymen's Associations, it has been thought well to present the following information regarding the Council.

RESOLUTION PASSED AT DOMINION DAIRY CONFERENCE.

Whereas the present prosperity of agricultural communities has been largely brought about by the growth of the creamery and cheese-making industries:

Be it resolved that in order to safeguard the dairy industry, steps be at once taken to organize a National Dairy Council, and that all dairy organizations represented at this meeting be included in the organization, and also any other dairy organizations that may be formed and are eligible to send representatives to a National Dairy Council.

The special committee to which this resolution was referred brought in the following report.

REPORT OF COMMITTEE.

Your Committee beg to recommend that the National Dairy Council be composed of two representatives from each Province, one representative from each Province to be a producer of milk, and that they add to their numbers as follows:

Four representatives of the cheese industry, three from the East and one from the West.

Three representatives of the butter industry, two from the East and one from the West.

Three representatives of the milk distributors, two from the East and one from the West.

Three representatives of the milk and cream producers for city trade, two from the East and one from the West.

Two representatives of the ice-cream manufacturers, one from the East and one from the West.

One representative of the condenseries.

OBJECTS OF THE COUNCIL.

The objects of the Council shall be:

The consideration and advancement of all matters tending towards the improvement of the Dairy Industry in Canada, including Production, Manufacture, Transportation, Storage, Marketing, etc.

(a) By analyzing proposed legislation and regulations both provincial and federal, and assisting in obtaining such legislation and regulations as will be beneficial to the Dairy Industry.

(b) By emphasizing through interprovincial co-operation the importance of the industry and to obtain for it the position it deserves as the most technical and complicated branch of Agriculture.

(c) By encouraging the adoption throughout Canada of uniform standards for dairy products.

(d) By the holding of meetings, the distribution of literature, and by systematic advertising, inform the general public in regard to the food value of dairy products.

(e) By encouraging production, uniform standards of grading and by co-operation in marketing, assist in developing a better trade for Canadian dairy products.

(f) To co-operate with the railways in securing the best conditions for transportation, and a just equalization of charges therefor.

(g) To carry on any business which may seem to the Council capable of being carried on in furtherance of the objects above set out.

Full particulars as to officers, Constitution and By-laws, programme of activities, etc., can be secured by writing to National Dairy Council, Ottawa, Ont.

Ontario was represented at the Dominion Dairy Conference by the following: Mr. Geo. A. Putnam, Director of Dairying, Toronto; Prof. Lund, Bacteriologist, O.A.C., Guelph; Prof. Dean, Dairy School, Guelph; L. A. Zufelt, Dairy School, Kingston; Frank Hens, Chief Dairy Instructor, Western Ontario, London; G. G. Publow, Chief Dairy Instructor, Eastern Ontario, Kingston; John Scott, Official Butter Grader, Toronto; J. Bingham, Ice Cream Manufacturers' Association, Ottawa; B. A. Bull, Jersey Breeders' Association, Brampton; J. P. Griffin, Holstein Breeders' Association; C. B. McNaught, Milk Distributors' Association, Toronto; J. D. Laing, Milk Condenseries; S. B. Trainer, Milk Powder Manufacturers, Toronto; E. H. Stonehouse, Milk Producers' Association, Weston; Mack Robertson, Belleville, and W. G. Jackson, Simcoe, Ontario Creamery Association; R. G. Leggett, Newboro; T. A. Thompson, Almonte, and J. A. Sanderson, Dairymen's Association of Eastern Ontario; James Donaldson, W. G. Medd, and Frank Boyes, Dairymen's Association of Western Ontario.

At the above Conference, among several resolutions adopted, was the following, which are recommendations only and refer to: (1) Commercial grades for cheese. (2) Commercial grades for butter. (3) Grades for cream. (4) Standard tempera-

ture at which cream should be pasteurized for buttermaking. (5) Pasteurization of dairy by-products.

RESOLUTION COVERING SCORE CARD FOR CHEESE AND BUTTER.

Whereas, there is a lack of uniformity in the scoring of butter and cheese throughout Canada, and,

Whereas, the adoption of uniform score cards and certificates would benefit the dairy industry.

Be it resolved, that the following score cards and grade standards be adopted for general use throughout Canada and that all score cards of this form bear the heading "Canadian score cards for butter or cheese."

SCALE OF POINTS FOR SCORING CHEESE.

(1) <i>Flavour</i> , 45.	(2) <i>Texture</i> , 25.	(3) <i>Closeness</i> , 15.
Acidy.	Stiff.	Loose.
Fruity.	Corky.	Ragged holes.
Rancid.	Mealy.	Gas or pin holes.
Tainted.	Coarse.	Swiss holes.
Cowy.	Weak.	
Weedy.	Lumpy.	
Bitter.	Pasty.	
Gassy.		
Heated.		
(4) <i>Colour</i> , 10.	(5) <i>Finish</i> , 5.	
Streaky.	Rough edges.	
Wavy.	Crooked ends.	
Mottled.	Soft rinds.	
Acid cut.	Mouldy.	
High.	Dirty.	
Light.	Box.	

Total, 100 points.

GRADES FOR CHEESE.

Special Grade—

Score, 94 to 100 points. Minimum for flavour, 41 points.

First Grade—

Score, 92 and under 94 points. Minimum for flavour, 39 points.

Second Grade—

Score, 87 and under 92 points. Minimum for flavour, 37 points.

Off Grades—

Score, under 87 points and under 37 points for flavour.

SCALE OF POINTS FOR SCORING BUTTER.

(1) <i>Flavour</i> , 45.	(2) <i>Texture</i> , 15.	(3) <i>Incorporation of Moisture</i> , 10.
Flat.	Weak.	Leaky.
Heated.	Salvy.	Free moisture.
Weedy.	Greasy.	Milky brine.
Sour.	Brittle.	
Stale.	Overworked.	
Metallic.		
(4) <i>Colour</i> , 10.	(5) <i>Salting</i> , 10.	(6) <i>Packing</i> , 10.
Too light.	Too light.	Poorly packed.
Too high.	Too heavy.	Poorly printed.
Uneven.	Undissolved.	Poorly wrapped.
		Poorly nailed.
		Poorly finished.
		Dirty.

Total, 100 points.

GRADES FOR BUTTER.

Special Grade—

Score, 94 to 100 points. Minimum for flavour, 41 points. (Must be from pasteurized cream.)

First Grade—

Score, 92 and under 94 points. Minimum for flavour, 39 points.

Second Grade—

Score, 87 and under 92 points. Minimum for flavour, 37 points.

Off Grade—

Score, under 87 points and under 37 points for flavour.

The Committee recommends that official grade certificates shall be issued only on butter made from effectively pasteurized cream.

GRADE STANDARDS AND GRADE DESCRIPTIONS OF CREAM.

TABLE CREAM.

This grade shall include any lot of sweet, clean, flavored cream bought for re-sale for household use. The acidity of this cream shall not be more than .18 per cent. at the time of grading. The term "Table Cream" may be supplemented by the terms "Inspected" or "Extra Special" as the initial purchaser may in each case uniformly adopt.

CREAM FOR BUTTERMAKING.

Special Grade.

This grade shall include any lot of cream which is fresh and clean in flavor, of a uniform consistency and fit for making into special grade butter. The acidity of cream in this grade shall not be more than .3 per cent. (three-tenths of one per cent.) at the time of being graded at the creamery where it is to be manufactured into butter.

First Grade.

This grade shall include any lot of cream which is reasonably fresh and clean in flavor, of a uniform consistency and fit for making into butter of this grade without the addition of acid neutralizing agents. Its acidity shall not be more than .5 per cent. (five-tenths of one per cent.) at the time of grading at the creamery where it is to be manufactured into butter.

Second Grade.

This grade shall include any lot of cream that does not meet with the requirements specified for the next higher grade; which is bitter, stale, musty metallic, or otherwise unclean in flavor.

PASTEURIZATION OF CREAM FOR BUTTERMAKING.

Moved by H. H. DEAN, and seconded by L. A. ZUFELT, that, whereas bacteria under modern conditions of creamery buttermaking, play so very important a part in determining the flavor of the butter, which is regarded as forming about one-half of its value; and,

Whereas, pasteurization has been found to be the most practicable means of controlling bacteria and enzymes in milk and cream, thereby improving the flavor and keeping quality of butter; and,

Whereas, the expense of such pasteurization is not such as to prevent its immediate and general adoption by creamery butter manufacturers;

Resolved, that this Dominion Dairy Conference hereby recommends the system known as pasteurization of milk or cream in the manufacture of all butter made in Canada and urges its adoption at once, by all creameries which are not already using this method. The standard temperature of 170 degrees Fah. holding for ten minutes.

COMPULSORY PASTEURIZATION OF DAIRY BY-PRODUCTS.

It was moved and seconded, That, whereas tuberculosis of swine is shown by statistics to be increasing from year to year, and is now causing serious losses to Canadian farmers; and,

Whereas, this disease in swine is derived almost entirely from tuberculous cattle, chiefly by feeding the hogs on unpasteurized dairy products;

Be it resolved, that the by-products of cheese factories and creameries should be rendered harmless by pasteurization before removal from such factories for feeding purposes, and that the Dominion Government be requested to make it compulsory to pasteurize all dairy by-products. Carried.

THE DAIRY SCHOOLS.

DAIRY SCHOOL, O. A. COLLEGE, GUELPH,
SESSION 1919.

The registrations at the Dairy School in connection with the Ontario Agricultural College for the various courses of 1919, were as follows:

Three months' factory course	43
Farm Dairy, four weeks' course	7
Cow-testing	30
Ice-cream and soft cheese	14
Dairy instructors	8
Summer class	2
Total	104

The Staff of Dairy Instructors was:

- H. H. DEAN, B.S.A. Professor of Dairy Husbandry.
- R. HARCOURT, B.S.A. Professor of Dairy Chemistry.
- A. L. GIBSON, B.S.A. Lecturer in Dairy Chemistry.
- D. H. JONES, B.S.A. Professor of Dairy Bacteriology.
- T. H. LUND, B.S.A. Lecturer in Dairy Bacteriology.
- T. J. MCKINNEY Instructor in Cheesemaking.
- GEO. TRAVIS Instructor Hand and Power Cream Separators; also in Boiler, Engine, Piping, Soldering, etc.
- D. McMILLAN Instructor in Buttermaking and Ice-cream making.
- H. L. DAVIS, B.S.A. Instructor in Milk and Cream Testing.
- MISS BELLE MILLAR Instructress in Farm Buttermaking and Farm Dairy, Soft and Fancy Cheesemaking.

Of the Factory Course students, thirty-six wrote on the final examinations, all of whom passed except three, who will be required to take supplemental exams in dairy chemistry and bacteriology. Twenty-eight passed the examinations in cow-testing and are qualified to act as Official Supervisors for testing cows officially.

Great interest was taken in the prizes offered by the Ayrshire, Holstein and Jersey Cattle Breeders' Associations for the best judges of dairy cattle; also, in the competitions for proficiency and manufacturing prizes, given by a number of dairy firms who are interested in the Dairy School. The number of prizes has been increased for the 1920 classes. We hope to make this feature more attractive, so as to induce a larger number of students to attend, and also in order to attract a better class of students. In order that we might accommodate larger classes and give better instruction, we need very badly, increased accommodation and larger money appropriations for this work. We hope the dairymen of Ontario will assist us in securing much needed buildings and equipment, commensurate with the great dairy industry of this Province.

H. H. DEAN.

EASTERN DAIRY SCHOOL, KINGSTON, SESSION 1919.

Officers and Staff.

Director—GEORGE A. PUTNAM, B.S.A., Toronto.
Superintendent—L. A. ZUFELT, Kingston.

Staff of Lecturers and Instructors.

L. A. ZUFELT	Dairy Lectures.
W. T. CONNELL, M.D.	Professor of Dairy Bacteriology.
W. L. GOODWIN, M.A.	Professor of Dairy Chemistry.
J. H. ECHLIN	Instructor in Cheesemaking.
W. G. GARDINER	Assistant in Cheesemaking.
J. A. CRAIG	Instructor in Buttermaking.
CHAS. F. LINN	Assistant in Buttermaking.
J. BURO	Instructor in Separators.
GEO. H. BARKER	Instructor in Milk Testing.

The attendance at the Eastern Dairy School for 1919 was as follows:

Long Course for Diplomas, Jan. 1st to March 20th	28
Short Course for Creamery Managers, March 3rd to 8th	22
Instructors' Course, March 24th to 29th	19
Total	69

Seventeen students wrote on the final examinations and all but two obtained a very creditable standing and will be granted diplomas after six months successful management of a creamery or cheese factory.

The Short Course for butter makers was a most enthusiastic one and no doubt will have far reaching effects. This course proved so popular that the students made a request that it be repeated again next session and, if possible, given a permanent place in the School Calendar. From the peculiar conditions which prevail in Eastern Ontario, it would appear that our regular long course for diplomas must be supplemented by short courses of from one to two weeks duration in order to reach the vast number of makers who cannot afford, or think they cannot afford the expense of a longer term.

EASTERN DAIRY SCHOOL CREAMERY.

Owing to the operation of the Creamery during the entire year, we have been in a position to obtain valuable information for the improvement of Ontario creamery butter. This information is being passed on to the creamerymen with the result that the general quality of the butter made in Eastern Ontario is steadily improving.

Whilst the creamery may not make a very large return in actual profit, yet it would be difficult indeed to estimate its value to the creamery industry at large. This fact is being more and more appreciated by the creamerymen, and we have the satisfaction of knowing that the information we have been able to impart is bringing in a substantial revenue through a higher standard of quality.

CREAMERY STATEMENT FOR YEAR 1918.

Total amount of butter made	131,058 lbs.
Total receipts	\$60,937 37
Average price paid patrons per lb. of fat	52¼c.
Manufacturing charges	\$4,971 74

L. A. ZUFELT, *Superintendent.*

Ontario Department of Agriculture

ANNUAL REPORT

OF THE

LIVE STOCK BRANCH

1918

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty

1919

Printed by
THE RYERSON PRESS

TO HIS HONOUR SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.,

Lieutenant-Governor of the Province of Ontario.

I have the pleasure to present herewith for the consideration of Your Honour
the Report of the Live Stock Branch of the Department of Agriculture for 1918.

Respectfully submitted,

GEO. S. HENRY,

Minister of Agriculture.

TORONTO, 1919.

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Annual Report of the Live Stock Branch 1918

TO THE HONOURABLE GEO. S. HENRY,

Minister of Agriculture.

SIR,—I hereby transmit the Annual Report of the Live Stock Branch for the year 1918. It contains the financial statement of the Ontario Provincial Winter Fair for the year 1918; report of Ontario Stallion Enrolment Board; report of co-operative shipments of pure-bred live stock; financial statements and lists of officers of the Live Stock Association and addresses delivered at annual meetings of the Live Stock Associations.

Faithfully yours,

R. W. WADE,
Director.

ONTARIO STALLION ENROLMENT BOARD

Chairman..... LIEUT.-COL. R. McEWEN, London.
JOHN GARDHOUSE, Weston.
F. C. GREENSIDE, V.S., Guelph.
PETER CHRISTIE, Manchester.
Secretary R. W. WADE, Parliament Buildings, Toronto.

Ontario Provincial Winter Fair

Following are a number of comparative tables of attendance, gate receipts, and entries for a series of years; also the regular annual statement of receipts and expenditures for the year ending January 31st, 1919:—

ATTENDANCE.

	1912	1913	1914	1915	1916	1917	1918
Friday				1,195	} 4,287	1,794	790
Saturday			2,550	3,214			
Monday	3,206		5,827	7,063	7,985	5,330	3,410
Tuesday	6,391	8,210	11,723	11,629	8,228	8,994	3,115
Wednesday ..	12,235	15,327	12,128	12,612	12,470	13,812	3,985
Thursday	9,587	13,180	5,050	6,915	8,711	8,022	1,329
Friday	3,590	4,266					
Total	35,009	40,983	37,278	42,628	41,681	37,952	12,629
Gate Receipts.	\$3,689.50	\$4,622.40	\$4,219.40	\$4,363.00	\$4,504.00	\$4,959.45	\$2,769.70

COMPARATIVE STATEMENT OF ENTRIES, 1910-1918.

—	1910	1911	1912	1913	1914	1915	1916	1917	1918
HORSES:									
Clydesdale	141	164	128	202	144	171	140	158	211
Shire	17	12	11	10	6	7	8	5	9
Percheron			48	48	35	28	27	32	42
Hackney	18	21	13	27	27	44	22	35	36
Standard-Bred	17	16	12	11	14	33	28	36	24
Thoroughbred	14	8	6	17	16	12	31	22	18
Pony	6	15	13	13	14	30	12	20	15
Heavy Draft	35	38	35	45	31	51	34	24	43
Saddle Horses								6	
	248	274	266	373	287	376	302	338	398
BEEF CATTLE:									
Shorthorn	36	39	34	47	44	62	82	74	107
Hereford	21	16	12	13	13	27	19	43	70
Aberdeen-Angus	8	6	7	11	6	19	27	27	38
Galloway	13	4	6	4	8	10			
Grade or Cross	51	48	44	58	83	83	67	31	40
Amateur Class	62	36	31	21	40	57			
Export Steers	10	5	6	6	9				
Dressed Carcasses	17								
Inter-County Baby Beef.								3	5
	218	154	140	160	203	258	185	178	260
DAIRY CATTLE:									
Shorthorn	1	1	2	6	4	6	4	5	7
Ayrshire	10	22	19	16	17	53	41	36	43
Holstein	26	34	37	34	27	72	34	39	51
Jersey	6		3	14	13	4	24	19	25
Grade	5	5	8	9	11	11	11	6	8
	48	62	69	79	72	146	114	105	134

COMPARATIVE STATEMENT OF ENTRIES, 1910-1918.—Continued.

	1910	1911	1912	1913	1914	1915	1916	1917	1918
SHEEP:									
Cotswold	52	54	43	37	52	62	65	56	68
Lincoln	38	45	45	21	44	36	25	45	18
Leicesters	44	30	25	37	38	33	31	35	67
Oxford-Down	32	55	35	35	52	56	25	59	97
Shropshire	31	36	41	40	55	61	51	81	66
Southdown	26	54	38	52	63	50	51	56	81
Dorset Horn	19	17	15	16	18	26	42	21	45
Hampshire and Suffolk..	8	14	11	18	19	35	28	34	64
Grade or Cross	72	66	69	65	90	63	71	70	82
	322	371	322	321	431	422	389	457	588
SHEEP CARCASSES:									
Cotswold	13	16	10	9	14	14	7	7	8
Lincoln	9	9	11	5	11	6	4	3	4
Leicesters	14	5	7	7	6	7	3	4	4
Oxford-Down	10	14	3	9	12	11	4	6	10
Shropshire	11	6	8	8	14	13	7	8	7
Southdown	9	14	10	11	16	9	3	3	9
Dorset Horn	11	8	7	6	9	6	5	6	7
Hampshire and Suffolk..	1	3	4	2	4	5	4	6	7
Grade or Cross	33	31	30	25	43	11	42	38	40
	111	106	90	82	129	92	79	81	96
SWINE:									
Yorkshire	66	61	40	62	62	72	60	57	66
Berkshire	71	70	42	67	36	60	48	80	85
Tamworth	31	30	17	22	22	36	24	41	32
Chester White	19	22	18	26	23	40	30	37	30
Any Other Breed	} 58	30	26	{ 18	8	34	45	15	44
Grade or Cross					39	31	48	.....	.....
Bacon, Hogs, Pure Breed.	31	24	16	16	19	40	24	23	33
Bacon Hogs, Grade.....	20	18	9	14	17	..	.....	.....	.....
Carcasses, Pure Breed..	23	21	11	12	19	34	24	17	33
Carcasses, Grade	17	17	8	14	13	.....	.....	.....	.....
Butcher Hogs .....	.....	.....	.....	.....	.....	23	15	11	12
Carcasses, Butcher Hogs	.....	.....	.....	.....	.....	22	14	11	12
Farmers' Sons, Special..	.....	.....	.....	.....	.....	6	2	7	4
	336	293	187	290	250	415	286	299	351
SEED	148	138	186	269	337	331	374	252	394
POULTRY:									
Fowls	3,542	3,577	3,296	3,416	3,311	4,198	4,092	4,518	4,651
Turkeys & Water Fowl.	449	379	298	385	378	346	396	462	455
Pigeons	443	455	435	255	474	558	663	872	913
Pet Stock	48	18	38	17	28	46	18	25	89
Utility Pen	13	18	18	11	13	20	31	59	69
Selling Class	331	323	251	274	147	229	82	.....	.....
Dressed Poultry	178	273	159	250	228	185	208	166	136
Laying Hens .....	.....	.....	.....	.....	.....	.....	.....	11	10
	5,004	5,043	4,495	4,608	4,579	5,582	5,490	6,113	6,323
JUDGING COMPETITION:									
Regular	250	293	242	309	250	195	124	145	140
Inter-County Teams .....	.....	.....	.....	.....	.....	54	63	60	63
	250	293	242	309	250	249	187	205	203

72 HOUR DAILY TEST, ONTARIO PROVINCIAL WINTER FAIR, GUELPH, 1918.

Cat. No.	Prize.	Name and age of Animal.	Lbs. Milk.	Fat.			Solids, not Fat.		Lbs. S.N.F.	Points for S.N.F.	No. Days Milking.	Points	Total Points.
				%	Lbs.	Points.	L. R.	%					
Shorthorn, 48 Mos. and Over.													
661	1st	Stanley's Pride	120.0	4.1	4.92	123.0	33.2	9.325	11.190	33.570	77	4.7	282.87
662	2nd	Flora 22nd	116.2	3.9	4.532	113.3	33.7	9.4	10.923	32.769	22	.0	290.069
Shorthorn, 36 Mos. and Under 48													
664	1st	Butterfly Bellona	116.6	4.3	5.014	125.35	33.7	9.5	11.077	33.231	32	.2	267.981
663	2nd	Butterfly Beauty	107.2	3.9	4.181	104.525	34.7	9.65	10.345	31.035	38	.8	245.56
Ayrshire, 48 Mos. and Over.													
672	1st	Pearl of Balquido	201.8	4.65	9.384	234.6	32.2	9.215	18.596	55.788	32	0.2	290.588
669	2nd	Scottie's Nancy 2nd	174.2	4.4	7.664	191.600	33.6	9.5	16.549	49.647	26	.0	241.247
673	3rd	Belle of Beachville	172.4	4.4	7.586	189.65	32.4	9.2	15.861	47.583	15	.0	237.233
671	4th	Scottie's Victoria	158.1	4.6	7.273	181.815	33.7	9.575	15.138	45.414	16	.0	227.229
676	5th	Springbank Speck	179.8	3.4	6.113	152.825	34.7	9.525	17.126	51.378	18	.0	204.203
675	6th	Primrose 4th of Hickory Hill	144.2	3.8	5.479	136.975	32.8	9.15	13.194	39.582	31	.1	176.657
Ayrshire, 36 Mos. and Under 48.													
681	1st	Rose of Montrose	144.6	4.7	6.796	169.9	31.0	8.925	12.906	38.718	27	.0	208.618
682	2nd	Rose Queen	155.4	4.2	6.527	163.175	34.7	9.725	15.113	45.339	16	.0	208.514
685	3rd	Snowdrop 3rd, of Hickory Hill	158.7	3.7	5.872	146.8	31.8	8.875	14.085	42.255	35	.5	189.555
689	4th	Acmelea Grace	153.4	3.8	5.829	145.725	32.7	9.125	13.998	41.994	42	1.2	188.919
688	5th	Springbank Jeanette	142.4	3.9	5.554	138.85	34.7	9.65	13.742	41.226	16	.0	180.076
684	6th	Primrose of Orkney 4th	124.2	4.0	4.968	124.2	33.7	9.425	11.706	35.118	30	.0	159.318
686	7th	Springbank Molly	128.0	3.8	4.864	121.6	33.7	9.375	12.0	36.0	28	.0	157.6
Ayrshire Heifer, Under 36 Mos.													
693	1st	Free Trader's Sarah	128.3	4.6	5.902	147.55	33.7	9.575	12.285	36.855	26	.0	184.405
697	2nd	Acmelea Spot	117.3	4.1	4.809	120.225	33.6	9.425	11.055	33.165	19	.0	153.39
692	3rd	Lady's Pet of Craigielea	113.0	3.9	4.407	110.175	33.6	9.375	10.593	31.779	48	1.8	143.754
696	4th	Daisy 2nd	116.6	3.6	4.198	104.95	33.7	9.325	10.873	32.619	40	1.0	138.569
694	5th	Free Trader's Nancy	112.48	3.5	3.948	98.7	33.7	9.3	10.49	31.47	31	0.1	130.27
695	6th	Free Trader's Sarah 2nd	90.5	4.4	3.982	99.55	33.7	9.525	8.622	25.866	58	2.8	128.216
691	7th	Minerva of Craigielea	98.1	4.0	3.924	98.1	33.7	9.425	9.245	27.735	47	1.7	127.535
Holstein, 48 Mos. and Over.													
722	1st	Fayne Segis Pontiac	266.7	3.6	9.601	240.025	35.2	9.7	25.870	77.610	13	.0	317.635
719	2nd	Fairview Posch	280.5	2.85	7.994	199.85	30.6	8.363	23.458	70.374	64	3.4	273.624
714	3rd	Mercena Chase	232.1	3.6	8.356	208.9	31.6	8.8	20.425	61.275	16	.0	270.175
720	4th	Elmdale Changling Pearl	216.9	3.4	7.375	184.37	32.2	8.9	19.304	57.912	41	1.1	243.382
717	5th	Nancy Burton Posch	204.7	3.5	7.165	179.125	33.6	9.275	18.987	56.961	16	.0	236.086

725	6th	Mercena Canary Dekol	196.0	3.6	7.056	176.4	33.6	9.3	18.228	54.684	20	.0	231.084
723	7th	Schuilng Pansy	210.2	3.2	6.726	168.15	34.2	9.35	19.654	58.962	35	.5	227.612
724	8th	Hilda of Nober	210.7	3.0	6.321	158.025	33.5	9.125	19.226	57.678	68	3.8	219.503
<i>Holstein, 36 Mos. and Under 48.</i>													
730	1st	Ruby Fayne Dekol	219.1	3.9	8.545	213.625	31.1	8.75	19.171	57.513	15	.0	271.138
731	2nd	Lady Fensen Abbekerk	222.8	3.2	7.13	178.25	33.2	9.1	20.275	60.825	26	.0	239.075
728	3rd	Pauline Posch Mercena	211.5	3.1	6.557	163.925	31.7	8.7	18.401	55.203	46	1.6	220.728
732	4th	Pontiac Burke Ormsby	189.5	3.4	6.443	161.075	34.7	9.525	18.050	54.15	14	.0	215.225
727	5th	Rose Teake Houwtje	227.8	2.7	6.151	153.775	32.8	8.875	20.217	60.651	12	.0	214.426
733	6th	Pontiac Posch	161.4	3.9	6.295	157.375	33.6	9.375	15.131	45.393	50	2.0	204.768
729	7th	Rosa Dekol Culana	170.3	3.5	5.961	149.025	35.2	9.675	16.477	49.431	11	.0	198.456
726	8th	Darkey Pet	189.8	2.9	5.504	137.6	32.6	8.873	16.641	49.923	82	5.2	192.72
<i>Holstein, 24 Mos. and Under 36.</i>													
738	1st	Elmwood Daisy Fayne	162.5	3.6	5.85	146.25	33.6	9.3	15.112	45.336	17	.0	191.586
737	2nd	Ianthe Belle Posch	179.1	2.9	5.194	129.85	32.1	8.75	15.671	47.013	46	1.6	178.463
742	3rd	Shadelawn Gerben Canary Queen..	168.1	2.8	4.707	117.675	32.7	8.875	14.919	44.757	42	1.2	163.632
736	4th	Daisy Vale Posch	147.5	3.1	4.573	114.325	35.	9.525	14.049	42.147	29	.0	156.472
739	5th	Hilda Duchess	139.2	3.3	4.594	114.85	35.2	9.625	13.395	40.185	37	.7	155.735
740	6th	Topsy Mercena Rosit	111.2	4.2	4.67	111.2	34.1	9.575	10.647	31.941	66	3.6	152.291
741	7th	Maple Grove Rose	126.5	3.0	3.795	94.875	31.1	8.525	10.784	32.352	65	3.5	130.727
<i>Jersey 48 Mos. and Over.</i>													
766	1st	Fanny of Edgely	160.0	5.1	8.16	204	34.0	9.775	15.64	46.92	45	1.5	252.42
763	2nd	Wilhelmias Violet	131.6	6.0	7.896	197.4	34.7	10.175	13.39	40.17	12	.0	237.57
762	3rd	Queen Greta	123.4	5.8	7.157	178.925	33.7	9.875	12.186	36.558	34	.4	215.883
767	4th	Edgely Flossie	132.9	4.7	6.246	156.15	32.7	9.35	12.426	37.278	24	.0	193.428
<i>Jersey, 36 Mos. and Under 48.</i>													
772	1st	Edgely Daisy Queen.....	124.7	5.1	6.360	159	34.7	9.95	12.408	37.224	37	.7	196.924
768	2nd	Brampton Bright Contata	118.1	4.8	5.669	141.725	33.7	9.625	11.366	34.098	20	.0	175.823
770	3rd	Edgeley Queen 2nd	107.7	5.2	5.6	140	34.8	10	10.77	32.231	58	2.8	175.11
769	4th	Brampton Pretty Sultana	125.0	4.3	5.375	134.375	34.2	9.625	12.031	36.093	24	.0	170.468
<i>Jersey Heifer, Under 36 Mos.</i>													
776	1st	Edgely Sweet Briar	103.0	5.2	5.356	133.9	33.7	9.725	10.017	30.051	38	.8	164.751
775	2nd	Edgeley Bright Lady	94.7	5.2	4.924	123.1	34.7	9.975	9.446	28.338	46	1.6	153.038
777	3rd	Edgeley Beauty Maid	82.5	5.0	4.125	103.125	35.1	10.25	8.456	25.368	61	3.1	131.593
773	4th	Brampton Chief Lady	78.3	5.4	4.228	105.7	34.4	9.95	7.791	23.373	52	2.2	131.273
<i>Grade, 48 Mos. and Over.</i>													
790	1st	Tilly	215.7	3.2	6.902	172.55	33.2	9.1	19.629	58.887	17	.0	231.437
787	2nd	Jewel	188.0	3.6	6.768	169.2	32.6	9.05	17.014	51.042	26	.0	220.242
788	3rd	Canary	200.7	2.9	5.82	145.50	31.1	8.5	17.06	51.18	19	.0	196.68
<i>Grade Heifer, Under 36 Mos.</i>													
794	1st	Spot	164.5	2.9	4.77	119.25	34.1	9.25	15.216	45.648	11	.0	164.898

FINANCIAL STATEMENT

Of the Ontario Provincial Winter Fair, for the year ending January 31st, 1919.

Receipts.

Legislative grant	\$12,000 00
Federal grant	5,000 00
Grants:	
Horse Breeders' Associations	1,550 00
Canadian Clydesdale Breeders' Association	\$1,500 00
Canadian Shire Association	50 00
Cattle Breeders' Associations	2,185 00
Canadian Ayrshire Association	\$300 00
Dominion Shorthorn Association	500 00
Hereford Breeders' Association	250 00
Aberdeen Angus Association, 1917 and 1918	410 00
Holstein-Friesian Association	725 00
Ontario Sheep Breeders' Association	300 00
Swine Breeders' Associations	275 00
Ontario Large Yorkshire Society	\$100 00
Ontario Berkshire Breeders' Society	100 00
Ontario Swine Breeders' Association	75 00
Subvention to seeds, 1917 and 1918	752 00
Concessions at Fair	384 67
Gate Receipts	2,769 70
Entry Fees	6,937 83
Horses	\$782 15
Horse stalls	311 00
Cattle	869 91
Sheep	514 75
Swine	349 15
Wool	21 85
Judging	141 00
Seeds	306 14
Poultry	3,099 88
Poultry memberships	542 00
Advertising in premium list and catalogue	1,156 15
Proceeds of catalogues	152 95
Proceeds of swine carcasses	2,797 99
Proceeds of sheep carcasses	1,100 77
Proceeds of dressed poultry	879 94
Proceeds of seeds	784 12
Refund, prize money	85 00
Entry fees, 1917	17 50
Donation for dressed poultry	50 00
Sale of coal	14 00
Sale of seeds, 1917	4 00
Sale of baskets	5 00
Roots and ensilage	136 37
Refund, labor account	6 55
Proceeds of milk	886 59
Express on seeds	8 60
Debit balance	6,095 32
Total	\$46,335 05

Expenditures.

Balance due Treasurer as per last report	\$238 08
Poultry judges	834 00
Live stock judges	636 50
Seed judges	60 00

Clerks	122 25
Directors' expenses	1,243 95
Telegraph and telephone	76 85
Directors' luncheons	398 32
Express	32 34
Exchange	7 80
Interest charged	9 85
Band	96 00
Rebate on freight	73 55
Block test	225 88
Sale of milk	681 91
Sale of seeds	782 38
Dairy test	99 96
Handling milk	160 88
Live stock feed	163 59
Office help	463 20
Office supplies	181 25
Managing arena	338 05
Live stock help	821 40
Poultry help	1,020 30
Seed room help	101 50
Turnstile	176 75
Bags, seed department	112 44
Prize money	24,025 75
Horses	\$5,495 00
Dairy cattle	2,457 00
Beef cattle	3,374 00
Sheep	3,156 00
Swine	2,087 00
Seeds	1,115 00
Judging	465 00
Poultry	4,649 25
Dressed poultry	435 75
Pigeons	406 75
Holstein-Friesian, Aberdeen Angus and Bright Specials ..	385 00
Stabling	237 50
Poultry feed	303 17
Fitting building	1,337 10
Insurance	111 80
Advertising	1,316 26
Printing	2,398 73
Heating and Lighting	962 97
Auditor	15 00
Ryrie Brothers (engraving)	41 90
Sale of dressed poultry	879 54
Sale of hog carcasses	2,869 70
Sale of sheep carcasses	1,101 83
Hay, 1917	23 76
Membership fee, Eastern Canda Live Stock Union	25 00
Taxes	16 46
Refund, entry fees	66 65
Straw and shavings, straw, \$421.83; shavings, \$203.02	625 85
Refund, stall fees	53 00
Tanbark	92 65
Ontario Poultry Association, memberships	542 00
Miscellaneous	77 45
Total	\$46,335 05

JNO. I. FLATT,
President.

R. W. WADE,
Secretary.

Stallion Enrolment

SUMMARY FOR THE PROVINCE OF ONTARIO SHOWING BY COUNTIES THE
NUMBER OF THE DIFFERENT BREEDS OF STALLIONS ENROLLED
DURING 1918.

County.	Clyde.	Per.	Shire.	Bel. Dr.	Fr. Can.	Suff.	Stan. Br.	Thor.	Hack.	Fr. Ch.	Ger. Ch.	Ponies and Morgans.	Total Pure Breds.	% of Pure Breds.	Grades.	Total Horses.
Brant	8	6	1	1	..	1	1	..	3	..	..	..	21	77.7	6	27
Bruce	42	13	2	3	1	..	10	1	2	1	..	1	76	81.7	17	93
Carleton	27	3	..	3	1	..	3	1	1	..	..	..	39	75.0	13	52
Dufferin	36	2	..	..	..	..	2	..	1	..	..	..	41	89.1	5	46
Dundas	7	3	..	..	..	..	1	..	2	..	..	..	13	81.2	3	16
Durham	30	..	..	..	..	..	4	..	5	..	1	1	41	97.6	1	42
Elgin	12	9	4	1	..	1	4	..	1	..	1	..	33	91.6	3	36
Essex	12	10	3	..	..	..	6	..	1	..	..	..	32	80.	8	40
Frontenac	3	5	..	..	..	..	6	..	..	..	..	..	14	60.9	9	23
Glengarry	10	5	..	..	..	..	2	..	2	..	..	..	19	65.5	10	29
Grenville	5	1	6	..	..	..	..	..	..	..	..	..	12	60.0	8	20
Grey	50	6	..	..	1	..	10	1	..	..	..	..	68	86.	11	79
Haldimand	11	6	..	..	..	..	4	..	2	..	..	..	23	71.9	9	32
Halton	4	6	..	..	1	..	4	1	..	..	..	..	16	69.5	7	23
Hastings	12	6	..	..	..	1	14	..	1	..	..	..	34	68.0	16	50
Huron	57	8	1	..	..	..	17	1	1	..	..	..	85	85.8	14	99
Kent	17	19	1	..	..	..	18	..	..	..	..	1	56	81.1	13	69
Lambton	37	4	4	..	..	..	14	..	..	..	..	..	59	83.1	12	71
Lanark	18	2	2	1	..	..	6	..	3	..	..	..	32	72.7	12	44
Leeds	6	3	..	..	1	..	3	..	..	..	..	..	13	68.4	6	19
Lennox & Addington ..	4	5	..	..	..	..	3	..	..	..	..	..	12	50.	12	24
Lincoln	6	1	..	..	..	..	5	..	..	..	..	..	12	75.	4	16
Middlesex	36	10	..	..	..	..	16	1	2	..	1	..	66	90.	7	73
Norfolk	5	8	..	..	..	..	1	..	1	..	1	..	16	66.6	8	24
Northumberland	12	6	..	..	..	..	3	2	..	..	..	..	23	82.1	5	28
Ontario	62	2	..	..	..	..	7	..	4	..	..	..	75	93.7	5	80
Oxford	19	9	..	..	..	..	3	..	1	..	..	..	32	88.8	4	36
Peel	25	7	2	..	..	..	4	2	2	1	..	..	43	93.4	3	46
Perth	43	6	..	..	..	..	12	2	1	..	..	..	64	90.1	7	71
Peterboro	14	7	..	..	..	..	1	..	1	..	..	..	23	71.9	9	32
Prescott	5	3	1	..	1	..	1	..	..	..	..	..	11	55.	9	20
Prince Edward	3	6	..	..	..	..	2	..	..	..	..	..	11	57.8	8	19
Renfrew	13	6	1	..	..	..	8	..	2	..	..	..	30	56.6	23	53
Russell	5	4	..	1	..	..	6	..	..	..	..	..	16	61.5	10	26
Simcoe	40	11	2	..	..	..	8	..	2	..	..	..	63	76.8	19	82
Stormont	5	3	..	..	..	..	1	..	..	..	..	..	9	45.	11	20
Victoria	30	3	..	..	..	..	5	..	1	..	..	..	39	73.5	14	53
Waterloo	19	6	..	..	..	..	7	..	1	..	1	..	34	79.	9	43
Welland	5	1	1	..	..	..	4	..	..	..	..	..	11	78.5	3	14
Wellington	39	7	..	..	..	..	2	2	2	..	..	..	52	76.3	16	68
Wentworth	7	5	..	1	..	..	3	1	1	..	..	..	18	80.9	4	22
York	53	11	2	..	..	..	11	9	2	..	..	..	88	87.1	13	101
New Ontario	28	18	..	..	1	..	6	..	1	1	..	..	55	43.3	72	127
Outside points	3	..	..	..	..	..	..	1	..	..	..	1	5	100.	..	5
	885	262	33	11	7	3	248	25	49	3	5	4	1,535	77.02	458	1993

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

APPROVED

Enrolment No. _____

FORM A 1

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the _____ Stud Book as No. _____

Owned by _____ of _____ Foaled in _____

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the _____ day of _____ 19_____, and found to be sound, of good conformation and an animal typical of the breed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman _____ Secretary _____

Dated at Toronto, Ontario, the _____ day of _____ 19_____

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

PASSED

Enrolment No... ..

FORM 1,

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the _____ Stud Book as No. _____

Owned by _____ of _____ Foaled in _____

has been enrolled under THE ONTARIO STALLION ACT. Inspected on the _____ day of _____ 19_____, and Passed.

THE ONTARIO STALLION ENROLMENT BOARD.

Chairman _____ Secretary _____

Dated at Toronto, Ontario, the _____ day of _____ 19_____

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Inspection is necessary every second year until the horse has passed seven years, but this Certificate must be renewed each year.

DEFECTIVE

Enrolment No.....

FORM 2

Certificate of Enrolment and Inspection

OF THE

PURE BRED

STALLION

Registered in the.....Stud Book as No.....

Owned by.....of.....Foaled in.....

has been enrolled under THE ONTARIO STALLION ACT Inspected on the.....day of.....

.....19....., and found to.....

THE ONTARIO STALLION ENROLMENT BOARD.

.....Chairman.....Secretary.....

Dated at Toronto, Ontario, the.....day of.....19.....

GOOD UNTIL DECEMBER 31st, 1919.

Application for Renewal and Transfer on back of Certificate.

Enrolment No.....

Premium No.....

This is to Certify that the.....
Stallion.....
Registered in the.....
Stud Book as No..... Foaled in.....
Owned by.....
of

Recommended by the Premium Inspection Board as a
Premium Horse for the year 1919

.....Chairman.....
.....Secretary.....

Co-Operative Car Shipments

CO-OPERATIVE SHIPMENTS OF LIVE STOCK.

Below is given the shipments for the years 1908 to 1918 inclusive, and that for 1918 in detail:—

NUMBER IN EACH SHIPMENT.

Year.	Horses.	Cattle.	Sheep.	Swine.	Total.
1908.....	22	74	14	15	125
1909.....	25	70	84	4	183
1910.....	39	51	36	7	133
1911.....	58	51	51	18	178
1912.....	51	45	24	20	140
1913.....	47	71	107	21	246
1914.....	49	97	34	20	200
1915.....	28	104	76	8	216
1916.....	59	185	100	22	366
1917.....	70	269	196	15	550
1918.....	67	250	180	4	501

DETAIL OF CO-OPERATIVE SHIPMENTS FOR 1918.

Stock.	Jan.	Feb.	March.	April.	May.	June.	Oct.	Total.
Horses—								
Clydesdales.....	1	10	26	12	4	6	.....	59
Percherons.....	1	.....	1	1	.....	.....	.....	3
Shires.....	.....	.....	1	.....	.....	.....	1	2
Hackneys.....	.....	.....	1	.....	.....	.....	.....	1
Thoroughbreds.....	.....	1	.....	.....	.....	.....	.....	1
French Coach.....	.....	.....	1	.....	.....	.....	.....	1
Cattle—								67
Shorthorns.....	27	26	56	30	10	4	7	160
Jerseys.....	.....	.....	1	.....	.....	.....	5	6
Aberdeen-Angus.....	9	1	4	9	19	.....	.....	42
Holsteins.....	2	2	.....	1	.....	3	2	10
Hereford.....	4	14	7	.....	1	.....	2	28
Ayrshire.....	.....	1	.....	2	.....	.....	.....	3
Galloway.....	.....	.....	.....	1	.....	.....	.....	1
Sheep—								250
Hampshires.....	.....	.....	.....	.....	.....	.....	3	3
Shropshires.....	.....	7	.....	40	.....	7	36	90
Lincolns.....	.....	1	2	.....	.....	.....	7	10
Suffolks.....	2	.....	.....	.....	.....	.....	.....	2
Leicesters.....	.....	.....	.....	.....	.....	.....	4	4
Dorsets.....	.....	.....	.....	.....	.....	.....	4	4
Southdown.....	.....	.....	.....	.....	.....	5	.....	5
Oxfords.....	14	12	5	.....	.....	.....	31	62
Swine—								180
Yorkshire.....	.....	1	.....	.....	.....	.....	.....	1
Berkshire.....	.....	3	.....	.....	.....	.....	.....	3
	60	79	111	96	34	25	102	501
No. of cars.....	3	3	6	4	2	1	2	

FORM OF APPLICATION FOR SPACE IN CO-OPERATIVE CAR FOR REGISTERED STOCK ONLY.

R. W. WADE, Esq.,
Director Live Stock Branch,
PARLIAMENT BUILDINGS, TORONTO, ONT.

Dear Sir,—Kindly reserve space for the stock named hereinafter, in the next shipment of pure-bred stock for Western Canada.

ALL STOCK WILL BE ACCEPTED AT THE OWNER'S RISK ONLY.

CATTLE:—Number in shipment.....
Male or Female
Age (in months if under 24 months)
Breed

SHEEP:—Number in shipment
Male or Female
Weight (including crate)
Breed

SWINE:—Number in shipment
Male or Female
Weight (including crate)
Breed

HORSES:—Number in shipment
Male or Female
Age
Breed

Space required, 1/3 1/4.....
Answer yes. Answer yes.

The above stock is to be delivered to Mr.
P.O.Railway Station

The shipper of each horse or horned animal must supply it with first-class halter, and tie rope at least six feet long. When the halter or rope above described is not supplied by the shippers, one dollar extra will be added to the transportation charges to pay for said halter or rope and the trouble of procuring same.

When the car is ready to go please notify Mr.
P.O., who will look after shipping in Ontario.

His nearest Railway Station isLine of Railroad

Charges to be prepaid or collected

I hereby agree to pay for space for stock on above conditions, unless my notice cancelling same is received by the Director, Live Stock Branch, before final notices regarding shipping this car are mailed, and certify that the above stock is in good health, and in a fit condition to be shipped.

(Signed)

Date P.O.

ALL STOCK MUST BE RECORDED IN THE CANADIAN NATIONAL RECORDS



SCHEDULE OF RATES FOR STOCK TO MANITOBA, SASKATCHEWAN AND ALBERTA IN CO-OPERATIVE CAR.

The following are particulars of rates charged for registered live stock in Co-operative car. These rates include transportation, care and feed during the time stock is in car. If it is necessary to ship to some point to meet the car, or if it is necessary to re-ship from the main line in the West to the destination, such charges in each case will be extra. (Registration certificates in a Canadian National Live Stock Record, must be forwarded to Director, Live Stock Branch, for the inspection of the station agent at the shipping point.)

NOTICE TO WESTERN BUYERS.

When stock is to be re-shipped from Co-operative Car to a point 100 miles or more from point of re-shipment, the purchaser must furnish an attendant from the point of re-shipment to destination.

The main line of the Canadian Pacific Railway, through Manitoba, Saskatchewan and Alberta, is divided into the following sections:

- Section 1, Winnipeg and East thereof.
- " 2, Bergen to Oak Lake.
- " 3, Routledge to McLean.
- " 4, Balgonie to Aikins.
- " 5, Swift Current to Bowell.
- " 6, Suffield to Calgary.
- " 7, West and North of Calgary.

CATTLE.

BULLS.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 12 mos.	\$9 00	\$10 00	\$11 00	\$12 00	\$13 00	\$14 00	\$15 00
12 to 24 mos.	14 00	15 00	16 00	17 00	18 00	19 00	20 00
24 mos. and over	18 00	20 00	22 00	24 00	26 00	28 00	30 00

HEIFERS AND COWS.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Under 12 mos.	\$9 00	\$10 00	\$11 00	\$12 00	\$13 00	\$14 00	\$15 00
12 to 24 mos.	12 00	13 00	14 00	15 00	16 00	17 00	18 00
24 mos. and over	15 00	16 00	17 00	18 00	19 00	20 00	21 00

HORSES.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
$\frac{1}{4}$ space	\$25 00	\$26 00	\$27 00	\$28 00	\$29 00	\$30 00	\$31 00
$\frac{1}{3}$ space	30 00	32 00	34 00	36 00	38 00	40 00	42 00

SHEEP.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Weight (including crate).							
Under 150 lbs.	\$4 00	\$4 25	\$4 50	\$4 75	\$5 00	\$5 25	\$5 50
150 lbs. and over	4 75	5 00	5 25	5 50	5 75	6 00	6 25

PIGS.

	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.	Sec. 7.
Weight (including crate).							
Under 150 lbs.	\$5 00	\$6 00	\$7 00	\$8 00	\$9 00	\$10 00	\$11 00
150 to 300 lbs.	7 00	8 00	9 00	10 00	11 00	12 00	13 00
300 lbs. and over	15 00	16 00	17 00	18 00	19 00	20 00	21 00

N.B.—Horses will be insured for \$200, \$500 or \$1,000, as shipper requests, at 1½% for 20 days. Write below amount of insurance required.

Incorporated Poultry Associations

Aylmer Poultry and Pet Stock Association.
Beamsville and Lincoln Poultry Association.
Beaver Valley Poultry Association, Meaford.
Belleville Poultry Association.
Border Cities' Poultry Association, Windsor.
Brampton and Peel County Poultry and Pet Stock Association.
Brantford and Brant County Poultry and Pet Stock Association.
Brockville Poultry and Pet Stock Association.
Caledonia Poultry Association.
Carleton Place Poultry Association.
Chesley and North Bruce Poultry, Pigeon and Pet Stock Association.
Collingwood Poultry Association.
Dufferin County Poultry and Pet Stock Association.
Dundas and North Wentworth Poultry Association.
Dunnville and Haldimand County Poultry Association.
East York Poultry Association.
Elgin Poultry and Pet Stock Association.
Fort Frances Poultry Association.
Galt Poultry and Pet Stock Association.
Gananoque Poultry Association.
Guelph Poultry Association.
Hamilton and Wentworth Poultry Association.
Hanover Poultry Association.
Harriston Poultry and Pet Stock Association.
Huron County Poultry and Pet Stock Association.
Kent County Poultry and Pet Stock Association.
Kingston Poultry Association.
Kitchener Poultry Association.
Lambton County Poultry and Pet Stock Association.
Leamington and Essex County Poultry Association.
Lindsay Poultry and Pet Stock Association.
Listowel Poultry Association.
London Poultry and Pet Stock Association.
Midland Poultry Association.
Mitchell and Perth County Poultry and Pet Stock Association.
Mount Forest Poultry Association.
Muskoka Poultry Association.
Napanee Poultry, Pigeon and Pet Stock Association.
New Hamburg Poultry Association.
New Ontario Poultry and Pet Stock Association.
Nickel Belt Poultry Association, Sudbury.
Norfolk Poultry Association.
North Bay Poultry Association.
Northern Ontario Poultry Association.
North Ontario Poultry Association.
North Middlesex Poultry Association.
North Wellington Poultry and Pet Stock Association.
North York Poultry and Pet Stock Association.
Northumberland and Durham Poultry Association.
Oakville Poultry and Pet Stock Association.
Oakwood Poultry Association, Toronto.
Ottawa Poultry Association.
Owen Sound and County of Grey Poultry Association.
Paris Poultry Association.
Peterboro Poultry Association.
Powassan Poultry Association.
Power City Poultry Association, Niagara Falls.
Prince Edward County Poultry, Pigeon and Pet Stock Association.
Renfrew Poultry Association.
Sarnia Poultry Association.

Smith's Falls Poultry and Pet Stock Association.
South Oxford Poultry Association, Ingersoll.
Spencerville and Grenville County Poultry Association.
St. Catharines and Niagara District Poultry Association.
Stratford Poultry and Pet Stock Association.
Tavistock Poultry and Pet Stock Association.
Teeswater Poultry Association.
Temiskaming District Poultry Association.
Tillsonburg Poultry Association.
Toronto Poultry and Pet Stock Association.
Waterloo Poultry and Pet Stock Association.
West Elgin County Poultry and Pet Stock Association.
West Middlesex Poultry and Pet Stock Association.
Waterdown and East Flamboro Poultry Association.
Wiarton Poultry Association.
Woodstock Poultry Association.

COPY OF AN ORDER IN COUNCIL GOVERNING GRANTS TO LOCAL POULTRY ASSOCIATIONS.

1. Local Poultry Associations may be organized in the Districts and in such manner as prescribed herewith, and may, upon application to the Minister of Agriculture through the Director of the Live Stock Branch, become recognized Poultry Associations, and shall, under the conditions named receive such assistance and such grants out of the funds appropriated by the Legislature for this purpose, as provided herewith.

2.—(a) Any Local Poultry Associations heretofore recognized shall be continued so long as they comply with the regulations providing for the annual conduct of recognized Local Poultry Associations.

(b) In order to qualify for recognition and grant, Local Poultry Associations shall henceforth be recognized upon the application of 60 bona fide poultry keepers, not members of any other Poultry Association, who have become members by the payment of fees.

(1) Where the recognition of an Association is cancelled for non-compliance with the regulations, another Association may be recognized upon conforming to the conditions herein set forth.

(2) Provided always that not more than one Association shall be recognized in any city, or more than two in any electoral district, unless such district includes a city when an additional Association may be recognized in the city.

(c) When any recognized Association fails to comply with the regulations during any calendar year, the Minister of Agriculture may give permission for a new Association to be formed in that district.

3. Application for recognition must be made on a form to be supplied to the Minister of Agriculture through the Director of the Live Stock Branch, and such application shall include a copy of the constitution of the Association, the minutes of the organization meeting, and a list of the officers and directors.

4. Local Poultry Associations shall receive annually, on recommendation of the Minister of Agriculture, a grant of \$50.00, and in addition a lecturer shall be supplied to discuss questions relating to the poultry industry at a meeting to be held under the auspices of the Local Poultry Association.

5. The grant shall only be paid upon receipt of an annual report made out in such a manner as may be required by the Minister of Agriculture.

6. The Minister of Agriculture may make such regulations as may be required for the better carrying out of this Order in Council.

Canadian Swine Breeders' Association

The annual meeting of the Association was held in Toronto, February 3rd. 1919. The President being absent, Mr. F. Byrne occupied the chair.

OFFICERS.

<i>President</i>	H. M. VANDERLIP, Cainsville.
<i>Vice-President</i>	M. W. MILLER, Brome Centre, Que.
<i>Secretary-Treasurer</i>	R. W. WADE, Toronto.
<i>Executive Committee</i>	H. M. VANDERLIP, Cainsville.
	M. W. MILLER, Brome Centre, Que.
	J. E. BRETHOUR, Burford.
	P. J. McEWEN, Wyoming.
<i>Auditor</i>	G. DE W. GREENE, Toronto.

DIRECTORS,

P. J. McEWEN, Wyoming.	S. G. HUTTON, Lacombe, Alta.
J. E. BRETHOUR, Burford.	S. F. TOLMIE, Victoria, B.C.
H. M. VANDERLIP, Cainsville.	FRANK BYRNE, Charlesburg, Que.
W. H. ENGLISH, Harding, Man.	M. W. MILLER, Brome Centre, Que.
S. V. TOMECKO, Lipton, Sask.	PETER BRODIE, Little York, P.E.I.

RECORD BOARD.

H. GERMAN, St. George.	J. I. FLATT, Hamilton.
J. D. BRIEN, Ridgetown.	M. W. MILLER, Brome Centre, Que.
J. E. BRETHOUR, Burford.	

Representative to the Eastern Canada Live Stock Union: J. E. BRETHOUR, Burford.

Representative to the Western Canada Live Stock Union: W. C. MCKILLICAN, Ex. Farm, Brandon, Man.

Representatives to Proposed National Winter Fair: WM. JONES, Mt. Elgin; H. A. DOLSON, Cheltenham, R.R. 1.

FINANCIAL STATEMENT

OF THE CANADIAN SWINE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING
DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$6,563 47
Registrations	10,574 35
Memberships	3,156 00
Interest	116 65
Total	\$20,410 47

Expenditures.

Directors' expenses	\$895 15
Postage	100 00
Grants:—	
Ontario Swine Breeders' Association	1,150 89
British Columbia Swine Breeders' Association	159 19
Alberta Live Stock Associations	462 15
Alberta Provincial Swine Breeders' Association	462 14
Quebec Swine Breeders' Association	1,029 15
Maritime Swine Breeders' Association	138 14
Manitoba Swine Breeders' Association	464 52
Saskatchewan Swine Breeders' Association	803 84

Record Office, for salaries, 1918	3,625 00
Record Office, balance due on expenses, 1917	330 60
Hotel Carls-Rite, rental of room	10 00
Auditor	5 00
Reporter at annual meeting	19 00
Protectograph Company, check writer	10 00
Membership fees for Eastern and Western Live Stock Unions ..	25 00
Printing records	3,703 34
Printing notices and ballots	55 50
Cash on hand	6,961 86

Total	\$20,410 47
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(Sgd.) G. H. HUTTON,
President.

(Sgd.) R. W. WADE,
Treasurer.

ADDRESSES.

E. S. ARCHIBALD, OTTAWA.

I feel that this is an opportunity I should not miss to let the swine breeders know that the experimental farm system is really trying to do something for the swine industry in Canada. I think the swine breeders do not always appreciate the difficulties that the Federal Government, on their experimental farms, have to face. Nor do the breeders appreciate the progress which has been made, nor do they keep in touch with the results, good, bad or indifferent, which we have achieved.

On the Dominion Experimental Farms and Stations, of which there are 33 in Canada, we have 21 stocked with live stock of various kinds. Seventeen of these are now working with swine. Six years ago, five farms only had swine, and I believe the total number of swine that year amounted to about 200. At the present time, on the 17 farms they have about 1,500 hogs, and as the farrowing season has not started, I think I am safe in saying that we will handle 3,000 pure bred swine on the various experimental farms and stations this summer.

Our work is strictly experimental, in breeding, feeding, housing, general management and care; in fact, any problem the farmer who is perhaps dealing with many or a few hogs has to face. We are there for the purpose of assisting the average farmer. Perhaps we cannot assist you the leading swine breeders in many instances, but are following in your footsteps along certain commercial lines. Our work is experimental and demonstrational and if we have anything of an educational value to give to our thousands of visitors, we are very glad to be of assistance to them. However, our main purpose is to gather information and get it into the hands of the breeders and agricultural societies whereby the largest number of average farmers may benefit thereby.

There are four farms where special work is being done with regard to swine, one at Lacombe that was in charge of Mr. Hutton, one at Brandon in charge of Mr. McKillican, one at Agassiz, B.C., and last but not least the one at Ottawa. The problems we are trying to work out are these: the cheapest method of raising hogs on the green pastures; methods of feeding—self-feeding vs. hand feeding—at various ages, from before weaning till the animal is ready for market; and breeding—raising the best breeders we possibly can. We are doing a certain amount of systematic crossing of breeds but this has not reached the stage where we feel justified in crossing to any great extent. We do not want to interfere with the breeder but desire to place pure bred young boars in districts that are

backward, and where we can do the greatest amount of good by introducing good breeding. We are really opening a market instead of interfering with the breeders.

In housing we have done a large amount of work, trying out piggeries of different sizes. Our best results are from the cheaper shelters, even for young pigs. The results even in cold climates, such as we get at Ottawa and in the northwest, have been most satisfactory. The shelters must be dry. We are trying to work out the problems you are facing. We are trying to extend your markets, for good breeding stock, by introducing better breeding stock throughout all the districts where the poor boar is kept. Our prime object is to work out your problems in their experimental phases, and that is the only justification for our existence. If you do not use us—that is your fault. We want you to use us, and we want to know your problems. It seems to be more and more difficult for us to purchase the class of breeding boars we need. We feel that we have a class of sows on our experimental farms that will compare favorably with those owned by the breeders of this Association, but to get boars good enough for those sows is a problem and one that you also must be faced with. Whether we should import or take other procedure is a question regarding which we want your advice and assistance.

W. B. ROADHOUSE.

I was interested in listening to the remarks of Mr. Archibald, and following up his remarks it may be pertinent to say a word or two as to the work of the Ontario Department of Agriculture, and its relation to your industry, and its place alongside the work which Mr. Archibald has outlined.

The authorities of the Ontario Department are acting very largely as a medium between the experimental and demonstration farms and the men on the farms. While we endeavor to carry on some experiments at our Agricultural Colleges and perhaps one or two other places, our main object is represented by the Live Stock Branch, represented by the District Representatives and other Branches, which disseminate information that will be of greatest benefit to the men on the land. That means shows, short courses, agricultural demonstrations of various kinds, and in doing this we seek to reach the average farmer and thereby raise the standard of stock that is carried on the average farm.

While I appreciate that this perhaps is not of as much direct benefit to the breeders of this Association who represent the leadership in this swine industry, at the same time, the success of your business necessarily and naturally depends upon raising the standard of the stock generally, and we feel that in disseminating this information we are helping the man who buys as well as the man who sells.

I am very glad indeed to notice the success of your organization during the past year, and although I recognize that you are now entering upon a period that will perhaps be more trying, in view of the uncertainty of the markets, I feel the outlook is good and the future will no doubt develop in the interests of the industry you have at heart and for which you are doing so much to develop.

There are present to-night and will be present at the meetings during this week, various experts from the Ontario Department of Agriculture, as well as others from the Federal Department and I wish to say that the services of all these officers are at your disposal, and I trust you will use them in the best and fullest way possible. I do not wish to encroach upon the ground that may be

covered by other speakers who will deal more fully with the outlook of the swine industry at the present time, but I hazard this opinion; notwithstanding present conditions, the outlook is good and the underlying conditions are sound. I feel sure that with the co-operation of this and other Associations, with the Government, and all concerned, that we will be successful in building up, in this Province, a swine industry which will be a source of profit to those engaged in it, as well as being a national asset to the Province and to the Dominion of Canada.

H. H. LE DREW, O.A.C., GUELPH.

Although I am instructor of Economics at the Agricultural College at Guelph, I do not know all about the bacon export trade to the British Isles. For example, I do not know what the Imperial Government of Great Britain is doing about the situation at the present time, and still less do I know what the Dominion Government is doing—but I think there is something doing. I think they realize that we are passing through a very critical stage in regard to the bacon industry.

It is inconceivable to me, after all that has taken place in the last three or four years, and the appeals that have been made to us from time to time, that something is not being done, because the Imperial Government, at least, knows what is going on. I suppose, if it were not for what the Canadian farmers did in 1916, 1917 and part of 1918, the war would still be raging. I am not concerned at all with present conditions in the British market. There appears to be a tremendous amount of pork of various qualities stocked up—not on the British market perhaps, but on the shores of the British Isles.

In looking over the situation you may say there is a glut on the market. I do not think there is a great quantity of bacon such as Canada has been producing. You can take the facts as they occur. Perhaps the Americans put something over on us—I don't know about that. I think it is a temporary situation anyway, and will readily pass.

It is to the future I will devote my time. I think the future is far more vital to Canadians than the present conditions that obtain in Great Britain. If the bacon industry is going to continue and if we are going to retain the market which we have already, to some extent, captured, then there is going to be a severe problem there for us to tackle.

The trade that Denmark had with Great Britain dates away back. We know the Danes used to seek a market in the British Isles when their Vikings used to roam the North Sea. There is no question in my mind, however, that the bacon trade that existed between Great Britain and Denmark before the war was really built up because the Danes supplied a genuine article, and it is there our chief competition will lie. The Danes have never forgotten what they learned about the British trade long years ago. The Danes think that they are foster mother to Great Britain because they supply her with butter, bacon and eggs. But, to my mind, Great Britain is the foster mother of Denmark. I do not think there is a more inglorious page in whole annals of history than the action of the Danish people, who had been supported by the British trade, when they turned that trade over to the enemies of the Allies. I think that action will stand as long as Denmark stands, as a disgrace against the Danish people. (Hear, hear.)

No matter where you go in Denmark, their purpose is to control the British trade, and they have selected their best men to look after that. Now, what did

Great Britain do when Denmark defaulted. She turned as naturally as any parent would do, to the children. That is the best feature I see about it, Great Britain called upon the Dominions—called upon Canada. Then we have a perfect right, if we have difficulties, to call upon the mother land. Why did the Danes default? They did not have the sentiments we had, they did not have that indefinable something that makes us one blood, and they were ready to seek their gains from some other country.

However, Britain turned to Canada. We have certain advantages over Denmark, and we are right up against it with Denmark as a competitor. We have four advantages: first, that sentiment I mentioned, exemplified in our soldiers and the men who did the work at home. Go where you will and you will hear of the part Canada played in the war. Then, we are better farmers, because I do not think a man can be a perfect farmer unless he rises to the full measure and stature of a man in every way, and the Danes have never done this as a people, and I don't think they can. The Danes have not got that broad outlook, independence of spirit and sturdy reliance as farmers, that the Canadian farmer has. We have a little cheaper feed. We can feed our bacon type of hogs, and perhaps every other kind a little cheaper than the Danes can because they have to import feed. Then we are a couple of million pigs ahead of them now. That is supposed to be an advantage to us.

But Denmark has perhaps five advantages. She has a standardized system, State supported, which is working perfectly satisfactory as far as the Danes are concerned. That is helping the Dane tremendously to solve his problems. Then there is no difference of opinion and no wrangling between packer and breeder. Co-operative Associations handle the products, and the farmer is the packer, and there is a perfect understanding in regard to transportation, curing and everything else that pertains to the business. I think that is a great thing in their favor. And they have a perfect organization which is built up with the express purpose of controlling the British trade.

They have only one-tenth of the distance that we have to transport their products. And the last and most important item is that they understand the value of the British trade so completely that even this night they are working feverishly to establish that trade again as soon as peace is declared. If that condition obtains, and I am sure it does, it is a suggestion for us. Is this our opportunity? It is, and we must get ready to act in the proper way, in a whole-hearted way, there must be no hesitation in the matter if we are going to win.

Surely we can have whatever understanding we want between the packer and grower. Surely we are able to handle that problem without calling in outside aid. That is in our own hands. If we realize the value of it, we can manage it. We can organize as well as the Danes. They do not stick together because they love one another; not at all. They stick together for the money that is in it. It pays them to stick together and that is why they do it. We can learn the value of the bacon trade with Great Britain as well as they can.

About four years ago I visited Denmark. I was told before leaving Canada I would not find out anything about the bacon trade as carried on by Denmark. I visited their farms and was sent back to their packing houses, and then from the packing house to the farm again. I never got inside a packing house, they were afraid I would learn the secret of their cure. I was not interested in their cure. If they had given me their formula I would not have understood it. I was interested in finding out what kind of farmer the Danish farmer was. I

found that by long odds they have a more difficult proposition ahead of them in the way of farming, than we have. But you must give the Danes credit for having some good things about their system when they have seven times as many hogs per hundred acres as we have. They have 15,000 square miles of territory and put 2,300,000 lbs. of bacon on the British market annually.

Here is another question I want to put to you. How long do you think it will take the Danes to recover. After you arrive at an estimate of that, I would advise you to cut it in two. I want to impress upon you that all their machinery is turned loose to solve that problem as quickly as it can be solved. I would not be surprised if some of their breeding stock went from Canada. They have ways of doing those things that I cannot follow.

There are two things that should be done. I think there should be some attempt made, whether between the Government and the packer, or between the breeder and packer, to arrive at some kind of standardization. Again I think the distance between the east coast of Canada and the west coast of the British Isles should be made exactly the same as that between the west coast of Denmark and the east coast of the British Isles. That is a question for the Imperial Government. It is within the limits of possibility, and if it is brought to the attention of the British people and put to them squarely in some way, that distance can be made equal. We do not ask for preferences over anybody but ask for a fair field, with no favors. Put us on an equal basis with the Danish farmer. Even if the Danes further subsidize their industry, while we are young and strong, I think we can meet them even to that extent. It is of tremendous importance that the competition of the Danes should be dealt with quickly. I have tried to make it as plain to you as I could, and it is after studying the conditions actually, on the Danish farms, that I have arrived at these conclusions. If these things can be brought to pass, I am sure we can compete with the Danes, and there is very great possibilities ahead of us.

J. E. BRETHOUR, BURFORD.

I believe this is rather a vital time in our industry. I had partially prepared myself to give a little information to the breeders, as I was recently in Ottawa, but I have been ill almost continuously since then and have not been able to give the matter much attention. However, I would ask you to bear with me, and I will give what information I have.

At the present time there is a good deal of uneasiness in regard to the future of our Canadian trade, which justly is the case. I do not believe it is as serious a matter as many think it is. We are met with a serious drop in price in connection with our commercial bacon of about \$2 a hundred, which has been brought about by the unfortunate condition which happened in England when the four months embargo was put on Canadian bacon. That is an act of the Imperial authorities, and is no doubt justifiable, and I believe we, as Canadians, have a right to meet it in that spirit. Why we should meet it in that spirit is because we cannot help but admit that England has done some wonderful things for Canada in this war; and Canada has done much for England. England has developed a wonderful market for our products, at high prices, and taken our goods at almost any price asked. England is now in a very critical period. The Imperial authorities are endeavoring to keep up their end of the buying proposition. Just now the British market is filled with American heavy meats, heavily salted. That condition of the market made a very serious problem for the

English people, and the embargo has been placed now so that the present stock can be unloaded before they allow any accumulation of fresh stock. The problem the British authorities have, is to unload that meat on to the European markets, and they have made that proposition to the American people. The meat that is there has been paid for by the Americans, and they say the meat can be disposed of in Europe or elsewhere, but it must be replaced with exactly the same amount of American fresh meats.

I know England will adjust that condition, but at the present time Mr. Hoover has it on us a little bit, and I think he is putting a little over us. He has guaranteed the price of bacon in the United States, and has to unload a lot of high priced meat on somebody, and has to unload it on the English people at the present time.

In explanation of the large amount of meat from the United States that is in England, I would say, that the English people were placed on rations prior to the armistice, and were allowed so much bacon per day for each family. The good bacon that was sent from Canada and other countries where good bacon is produced was being sent to the boys in the trenches. With the settlement of war conditions, the Englishman says, "I am buying my own meat and I am going to buy the class of meat I want," and he absolutely refuses to buy the heavy, salted, coarse meat, but he wants good, prime bacon. There is an opportunity for us when the market gets settled. There may be a short period of depression, but after that I do think there will be no difficulty at all to dispose of all the good bacon that can be produced, and on a good, remunerative basis. I believe prices will be high, that feeds will be cheaper and labor will be less. This will enable us to put our hogs on the market at a lower cost, and there will be an unlimited market for all the bacon that can be produced in Canada.

That being the case, I think we have very little to fear as breeders, and should carry on present operations and extend to the very fullest limit. There will be a large market in the old country for our prime meats. I do not wish you to think, because I happen to be a Yorkshire breeder, that I want to specialize, I throw out this suggestion to every Canadian farmer and breeder—to be careful in his selection; get the very best breeds obtainable. We have to discriminate in our markets, and have to meet the conditions we find and the only way to do that is to consider the matter in a business way.

I can only say further that our Association in the past has been composed of various breeders, of all classes of live stock, and we have always worked harmoniously and there is no reason why such relations should not continue in the present case, because there is a great field for our operations. If you aim to cater to the export trade you must furnish the class of animal that will meet that trade. What the Englishman demands is his prime breakfast bacon.

AMENDMENT TO CONSTITUTION.

On motion of W. H. ENGLISH, seconded by P. J. McEWEN, the following amendment to the Constitution was carried:

"That the Constitution of the Canadian Swine Breeders' Association be amended to read as follows: Section 15, Subsection 8, following B. Add Subsection 9 to read "Any other pure breed approved by the Canadian National Live Stock Records Committee."

Ontario Swine Breeders' Association

The Annual Meeting of this Association was held in Toronto, February 4th, 1919.

OFFICERS.

<i>President</i>	WM. JONES, Mt. Elgin, R.R. 4.
<i>Vice-President</i>	CECIL STOBBS, Leamington.
<i>Secretary-Treasurer</i>	R. W. WADE, Toronto.
<i>Executive Committee</i>	GEORGE DOUGLAS, Mitchell. F. W. WRIGHT, Glanworth. WILLIAM JONES, Mt. Elgin, R.R. 4. CECIL STOBBS, Leamington.
<i>Auditor</i>	G. DE W. GREENE.

DIRECTORS.

A. LEITCH, O.A.C., Guelph.	GEO. DOUGLAS, Mitchell.
WM. JONES, Mt. Elgin, R.R. 4.	W. F. WRIGHT, Glanworth.
JOHN I. FLATT, Hamilton.	CECIL STOBBS, Leamington.
J. K. FEATHERSTON, Streetsville.	GEORGE GOULD, Essex.
H. A. DOLSON, Cheltenham.	W. W. BROWNRIDGE, Georgetown.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: ADAM THOMSON, Stratford, R.R. 1; JOHN DUCK, Port Credit.

Western Fair, London: W. F. WRIGHT, Glanworth; GEO. DOUGLAS, Mitchell.

Central Canada, Ottawa: GEO. R. THOMAS, Record Office, Ottawa; WM. JONES, Mt. Elgin.

Ottawa Winter Fair: J. W. BRANT, Ottawa; GEO. R. THOMAS, Record Office, Ottawa; J. C. STUART, Osgoode; WM. HARTIN, Richmond.

Ontario Provincial Winter Fair: WM. JONES, Mt. Elgin, R.R. 4; JOHN I. FLATT, Hamilton; P. J. McEWEN, Wyoming; J. D. BRIEN, Ridgetown.

Eastern Canada Live Stock Union: JOHN I. FLATT, Hamilton.

Proposed National Winter Fair: J. E. BRETHOUR, Burford; P. J. McEWEN, Wyoming.

FINANCIAL STATEMENT

OF THE ONTARIO SWINE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$270 35
Grant—Canadian Swine Breeders' Association	1,150 89
Refund grant—Co-operative cars	500 00
George Douglas, refund expenses	9 20
Total	\$1,930 44

Expenditures.

Grants—	
Western Fair, London	\$60 00
Canadian National Exhibition	120 00
Central Canada Exhibition	60 00
Ontario Berkshire Breeders' Societies	203 33
Ontario Large Yorkshire Swine Breeders' Society	354 04
Ontario Provincial Winter Fair	75 00
Canadian Co-operative cars	500 00

Auditor	3 00	
Membership fees, Eastern Canada Live Stock Union	25 00	
Protectograph Company, check writer	5 00	
Reporting annual meeting	7 60	
Hotel Carls-Rite, rental of room	10 00	
Directors' expenses	117 60	
Printing	7 95	
Exchange on cheques	1 15	
Cash on hand	380 77	
<hr/>		
Total		\$1,930 44

R. W. WADE,
Treasurer.

PRESIDENT'S ADDRESS.

JOHN I. FLATT, HAMILTON.

The hog raising industry of Canada is passing through the most precarious time of its history. Common sense tells us that with the depletion abroad the live stock industry will be the industry for the next few years, and it will be a crime if Canada does not have her full share in replenishing the world with live stock and foods. A good deal of our success in the Live Stock Industry during the next ten years will depend entirely on the manner it is handled by those in charge of this work at Ottawa. Canadian bacon has made a name for itself during the past four years such as it never had before. We have always been able to secure a premium for Canadian bacon over the United States raised product, and the very fact that our market for live hogs is under that of the United States to-day, does not, to my mind, speak very well for those who are handling these affairs at the present time. We all acknowledge that the price of live stock is high, and must necessarily be lowered, but I feel that the process of lowering should be handled by the Government, and that a minimum price should be guaranteed both the raiser and the packer for their product, just so long as the dire want for food stuffs in the world exists. It is true that the credit of the countries of our late enemies may not be very inviting at the present time, but surely when people are literally starving to death, our financiers should be able to make some kind of arrangement whereby these people can be fed and the producers of this country can find a market for their product. Every possible effort of this Association and similar organizations should be used at this time to impress on the Government the absolute necessity for the judicious handling of the live stock industry.

A prominent American packer recently on the stand in Washington, among other things, said:

"If a monkey-wrench is thrown into the gears of this business its effect will not be confined to the meat packing industry, it will affect corn prices, and wheat will then be drawn in, so will bread, so will labor, and so will everything that has for its basis the wealth produced by agriculture."

And since this statement was made, the United States Government has, as I have stated above, fixed a minimum price on live hogs for the month of February. In fact the United States Government is alive to the fact that the live stock in the United States at the present time is so much in excess of its previous production and that so much of the welfare of the Country depends on the live-stock industry, that they are giving this industry their particular attention.

It may be of interest to you to know that Live Stock on farms January 1st, in U.S. as given out by the Government Report, aggregated 219,775,000, an increase of 6,344,000 over same time a year ago. Valuation and numbers are highest known, valuation being \$8,830,204,000, a gain of \$546,000,000 for the year and \$2,000,000,000 as compared with two years ago. This shows an increase of 4,609,000 hogs, 1,200,000 sheep, 287,000 cattle and 57,000 milch cows.

I believe I am quite safe in stating that the increase in production in Canada will compare favorably with that of the United States everything considered and I believe that the absolute necessity of the close supervision of the Government in the handling of this very important industry is what is required, and as I stated above too much pressure cannot be brought to bear, to see that the proper markets are found for the product of the farm of this country during the next few years or until such times as normal conditions prevail. I have every reason to believe that the Canadian packing houses are well able to take care of all the pork that can be produced in this country during the next ten years and that if our Government will act, and act speedily, either by allowing the packers to export their product to their own connections abroad, or to my mind the preferable course would be for the Government to find a market for them, that the future of the industry in this country is assured and that no raiser need have any scruples whatever, about extending his business and producing to his utmost, live hogs in this country.

It is a well known fact that for a long time past, the Canadian packers have not been able to export their product direct to their own connections in foreign countries. All exportations of meats and meat products have been through the Allied Buying Commission and until such time as the order is rescinded, packers of this country have no alternative but to look to the Allied Buying Commission for the disposal of their products, and as matters now stand it appears that the Allied Buying Commission are shipping only United States pork. There seems to be a lack of business management somewhere on the part of our Government in allowing the British market to be so continuously flooded with American pork that there is no room for a Canadian product there.

I feel that an explanation is due the swine breeders of Canada, and some assurance given that our interests will be safe-guarded better in the future than they have been in the past and if I might go farther, I would suggest that this association urge the department to place a strong man in Britain who will give the bacon industry the attention it justly deserves.

ADDRESS.

HON. GEO. S. HENRY.

Hon. Geo. S. Henry, Minister of Agriculture for Ontario, addressed the members briefly, referring especially to current conditions in the bacon market. He expressed the opinion that the unsettled condition would soon be adjusted and that there would be a strong demand for hogs and hog products in the future. He added that the Ontario Department of Agriculture was anxious to be of assistance to the breeders in every possible way. He stated his conviction that the agricultural development of Ontario must go hand in hand with that of live stock and for that reason the Department was anxious to encourage the production of live stock in all its branches, of which the bacon industry was not the least in importance.

HOUSING AND FEEDING LIVE STOCK.

E. S. ARCHIBALD, OTTAWA.

I come to you as your farmer. I feel that the spirit of this meeting is honest and sound, and you really should do something. As a farmer, and as a civil servant, I have heard vague promises made from time to time regarding the bacon situation. Possibly I, too, have been a party to some of this, but it is altogether too vague throughout. I believe, with the unity of feeling there is in this meeting, you can get action, and you should not let the matter stand as it is. I feel that Mr. Flatt's suggestions and recommendations, with one or two exceptions, are fair, and require your most careful consideration and attention.

There have been established a large number of experimental stations throughout the Dominion of Canada. These stations were established with the anticipation of carrying on investigational work in many problems, not the least being the swine industry and we are, to the best of our ability, carrying on all such investigations which we know to be of importance to the people of Canada. During the past three or four years, in the face of very difficult problems such as the labor situation and the high price of feed, we attempted to double or treble our work of investigation as to the cost of increased production. We have devoted all our energies to lowering the cost of production, wherever possible. Market studies come under the jurisdiction of the live stock branch and the Department of Trade and Commerce, not under Experimental Farms.

We first dealt with the question of labor. We have tried out a great many types of self-feeders, and there are one or two that will give excellent results for feeding grade or pure-bred hogs of various ages, and will cut the cost of labor in two, thereby leaving a possible margin of profit in these days of high costs.

As to feeds, we have again materially cheapened our cost of production by the use of more home grown roughages, such as pastures of various kinds, and home grown grain, and the by-products of elevators and mills. I would like to refer more particularly to pasturages. In the production of market hogs we have tried out a great many different types of pasture such as spring rye, barley, oats, wheat, alfalfa, clover rape and several others. We cannot too strongly recommend the proper use of good pasture in the rearing of good market hogs and for the production of the cheapest and best quality of bacon.

I feel that you are the missionaries in this business, that you are responsible for the work which is done by the average producer in your business and I really think you should take such matters pretty much in hand for the general distribution of information.

We find that barley, rye and alfalfa pastures are best for growing hogs for finishing and maintenance, probably rape is the best pasturage, for the production of pork, an acre of barley or rye pasture, properly fed to pigs of the proper age, may be equivalent to a ton or ton and a half of ground grain or meal. You may, by proper feeding, market an acre of these pastures at \$50 to \$75, and the hogs do their own harvesting.

We find that pastures with self-feeders give the best results. The point I want to make particularly is this, that we work to the best of our ability on the lines of production and we want any suggestion which you may have; we want your assistance in every possible way.

We have been investigating the values of various feeds and demonstrating the value of grade "A" screenings. Grade "A" screenings (standard stock food), fed in an economical way, may be worth more than shorts and be slightly superior to barley fed alone, and when fed in proper combinations with corn or barley, it is equal to or superior to shorts, middlings and some of the other standard foods that we have depended on so much in the past, and when the supply was cut off, we felt it was almost impossible to carry on our hog production. And so we try to keep one step ahead on the question of feeds.

As to housing, we are continuing to demonstrate that the cheap, small, dry piggery for winter, and the small cabin for the mature stock, is by far the best and cheapest means of housing the pigs. The large, expensive hog palace is a curse. We have dozens of piggeries of various kinds, and have almost a thousand single cabins, and we know whereof we are speaking. Do all you can to influence the man who is thinking of putting up a piggery, towards putting up the cheap kind, without any extravagancies, and he will get the best results. He will have less trouble with crippled pigs, and have greater and cheaper production, and there will not be the reflection on the pure-bred boar or expensive piggery that there has been in the past. I feel strongly in this matter, and I know that the older and more experienced men know this to be correct.

I would like to give you an idea of the extent of the work we are doing. In the last five years we have increased the number of farms that carry hogs from six to seventeen; the number of brood sows by 210, and this summer we have over 3000 hogs as compared with about 300 five years ago. We are really trying to make great strides in the breeding of good pure-breds for distribution and sale. We aim to have sufficient breeds for the carrying on of our experimental work, which will be of value to you pure-bred breeders—and above all, to your pigs. We have a number of farms where we have from 40 to 70 brood sows breeding this year and are really trying to carry things on in a comparatively large way. It may be of interest for you to know that in spite of the large overhead cost in all our experimental work, we have shown a good margin of profit in all our swine work.

As to costs. Generally speaking, we find that the cost of production is in about this proportion: about 65 per cent. to 70 per cent. of the total cost is for feed and the balance is taken up with labor, interest and depreciation. That is figuring on the basis of straight meal. On straight grain, either fed as slop or dry, it will probably take from 5 to 6 pounds of grain per pound of gain, if properly fed with succulent food and cheap roughage. You can lower that by using good pasturage and succulent roots or hay, from 5½ pounds grain per pound of gain to about 3 pounds per pound of gain. Our experiments have demonstrated the absolute necessity of using rich, succulent, cheap farm grown roughages, to keep down the cost of production. That is something the majority of bacon producers are appreciating now more than ever. We must keep down the cost of production by the judicious use of good pastures and provide succulent roughages for winter use.

Publicity is the secret of success. Unless our colleges and experimental farms are known to the majority of breeders and farmers, they eventually will fail in their object.

As breeders you use your fairs as your advertising medium and so we too have been putting on special exhibitions of one sort or another, usually of a dead nature, at all the various fairs in Canada which indeed was one of the

greatest influences in increasing that mailing list. The attractive advertisement undoubtedly of great value will not however most quickly catch the eye of the farmer. He wants to see something alive and moving. Consequently a few of the Provincial institutions have started showing live stock as a means of publicity. In the Province of Saskatchewan they had a special exhibit showing the value of a good pure bred sire in swine, and they showed the parents and progeny. However the actual number of farmer visitors seeing this exhibit was small compared with the numbers who saw the animals in open competition in the show ring.

At our present Experimental Farm Exhibits we try to get the farmer to ask us for the information which we have and which he needs, or get him to tell us what problems he has and which we are trying to meet. A number of western Colleges and Experimental Farms have started to show in open competition. Their winnings have enormously increased interest in their live stock work. I realize that the Government institution is spending your money in order to build up certain herds or flocks, and if that institution is going to compete with you in the show ring, that is taking the prize money out of your pocket. It is however your institution and should serve the largest number of farmers, and serve the public. I honestly believe, if the Provincial and Federal institutions could stimulate enough interest amongst themselves to have separate classes for Government owned institutions at the largest fairs, and let them compete in the championships, where no money would be taken from the average farmer, that would be an ideal way of showing. In the meantime the Government institutions are only getting on their feet. Will we have the privilege, as in the west, of going into the open show ring and competing against the farmer—the money of course to revert to the next one below, or to the fair association? Will we have that privilege until all the Federal and Provincial institutions can get out and make a real, successful, first class exhibit, so as to draw the attention of the public to all the institutions maintained by their money for the special purpose of experimenting and demonstrating certain lines of economical live stock production? I would like to get an expression of the opinion of this meeting. I assure you that any sales of pure-bred stock from any Federal institutions have been made just as carefully as possible so as not to tread on your toes, as pure-bred breeders, who are depending on your sales for your living. We sell very reasonably and try to place these pure bred animals in districts where you have not had a market, and if we can succeed in that we are opening that much broader market for you as breeders.

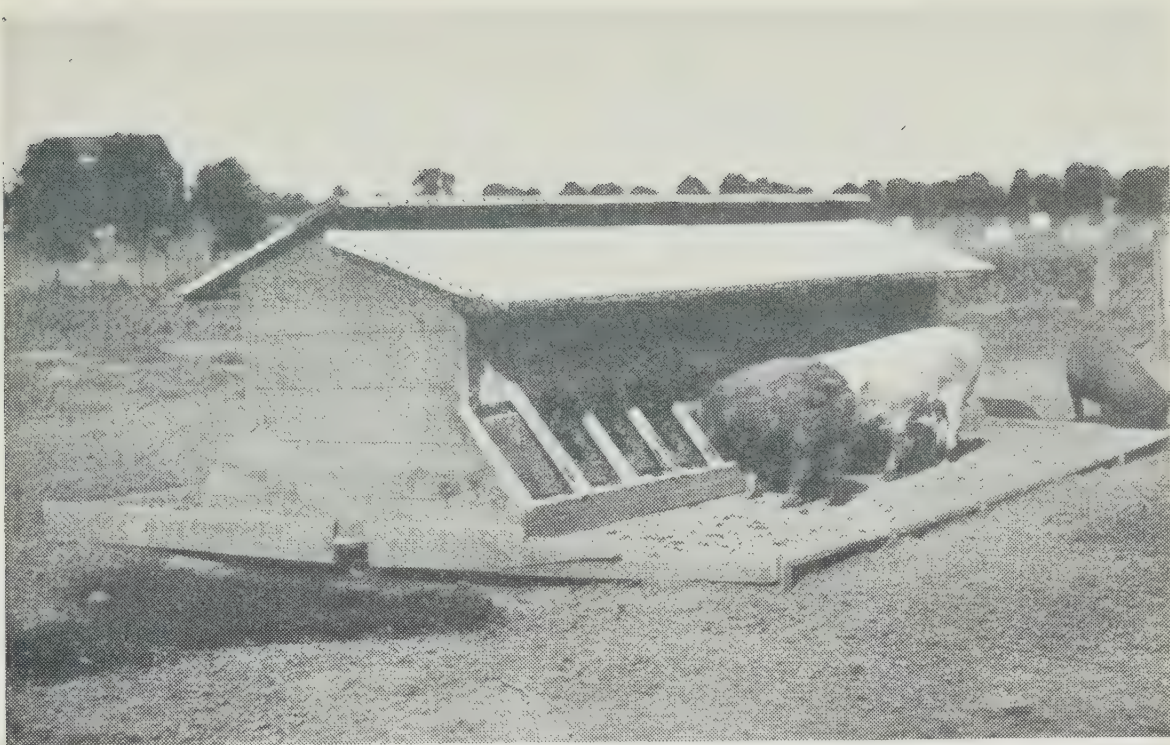
I believe your market problem is the biggest problem and unless you make the Government realize that you are united as breeders in your demands, and insist that the very best action possible be taken not only to open markets but to stimulate and create trade in every possible way, that you will miss the one great aim of your annual meeting this year and the greatest opportunity you have had for some time.

THE PRESIDENT: When feeding barley and rye pasture, do you allow the rye to mature or do you feed it as green pasture?

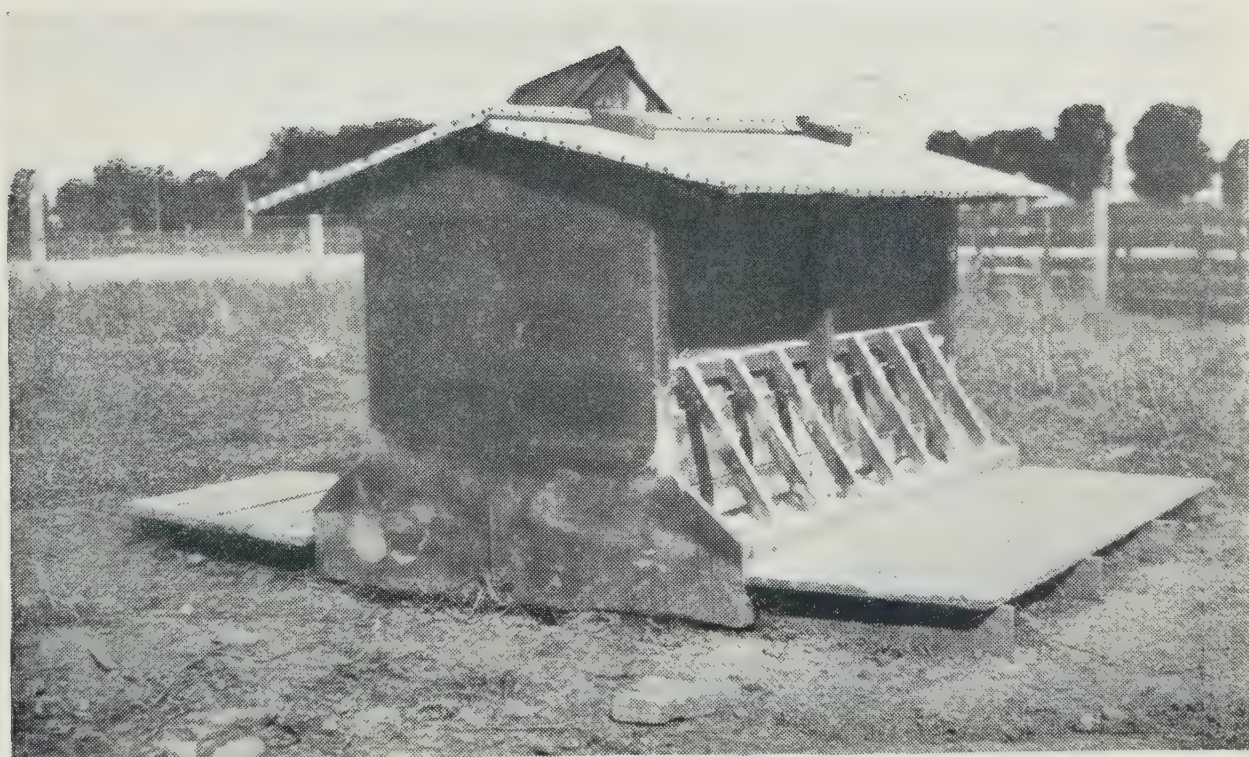
MR. ARCHIBALD: Start your pigs on the pasture when it is six or seven inches high. It has been found that rye pasture from 2½ to 5 inches in height is actually richer than clover. It is only when it matures and gets woody that it becomes poorer than clover; so the shorter the grass, the richer it is and incidentally the less waste.

A MEMBER: What results have you had from feeding meal dry?

A.—Generally speaking our experiments have shown that dry feed is as satisfactory as slop feed, although that does not apply to every experiment.



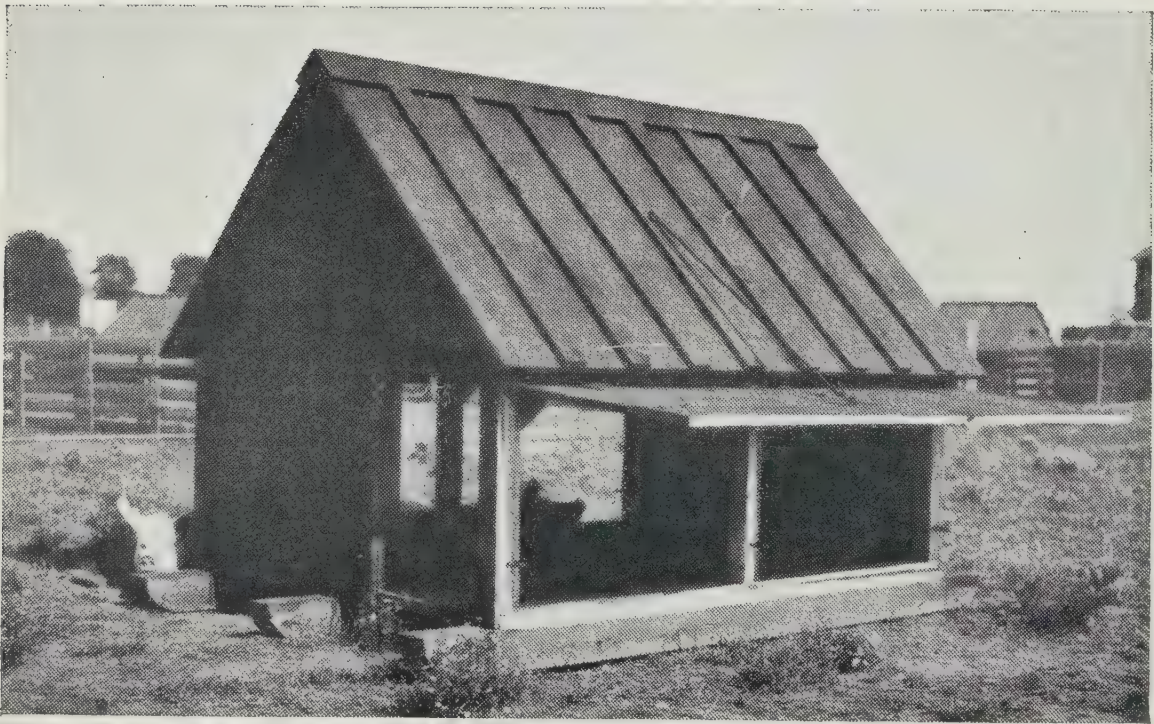
A twelve-foot double self-feeder with four compartments, designed for use of the free-choice system on pasture.



A six-foot double self-feeder with feeding platforms.



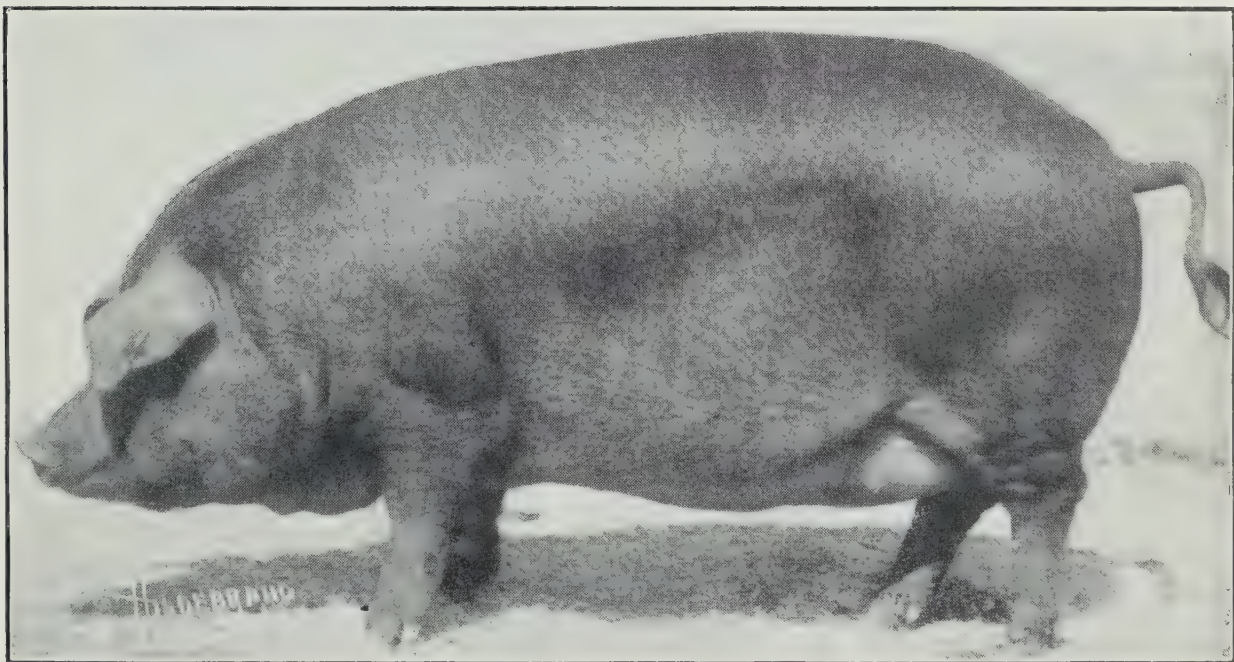
A portable cabin for hogs. Note the raised sides. A section of the roof may also be elevated. In winter these sides are securely held down with heavy pins through iron staples.



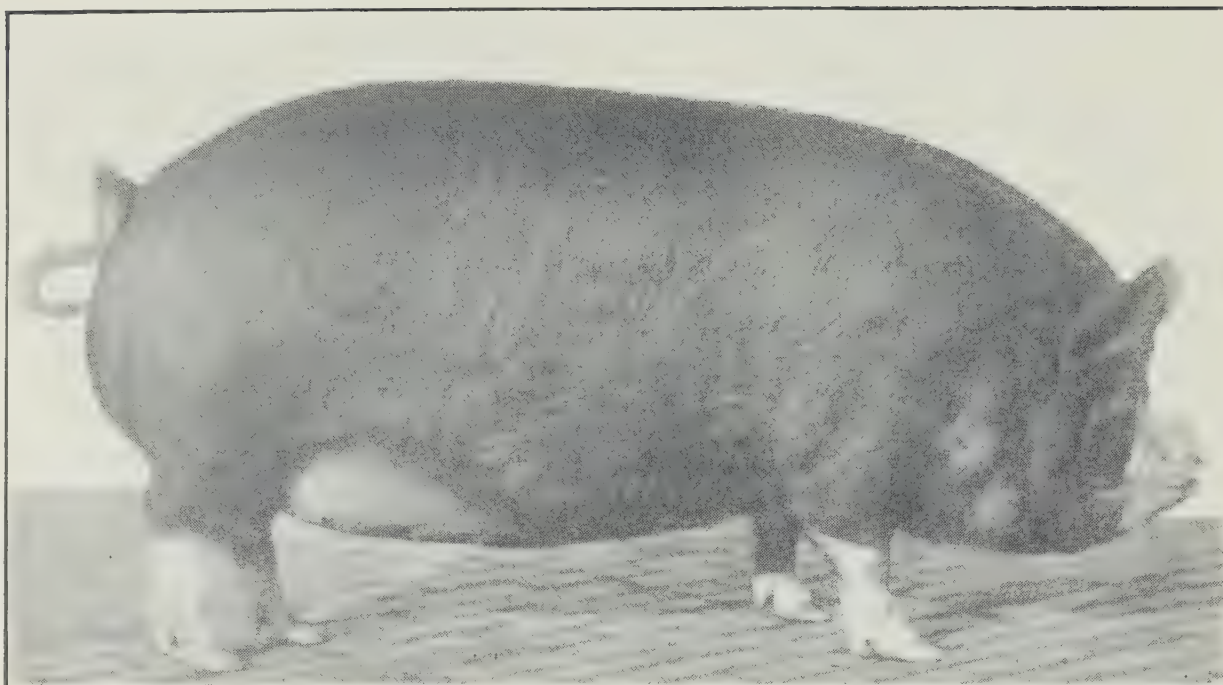
Another view of portable cabin.



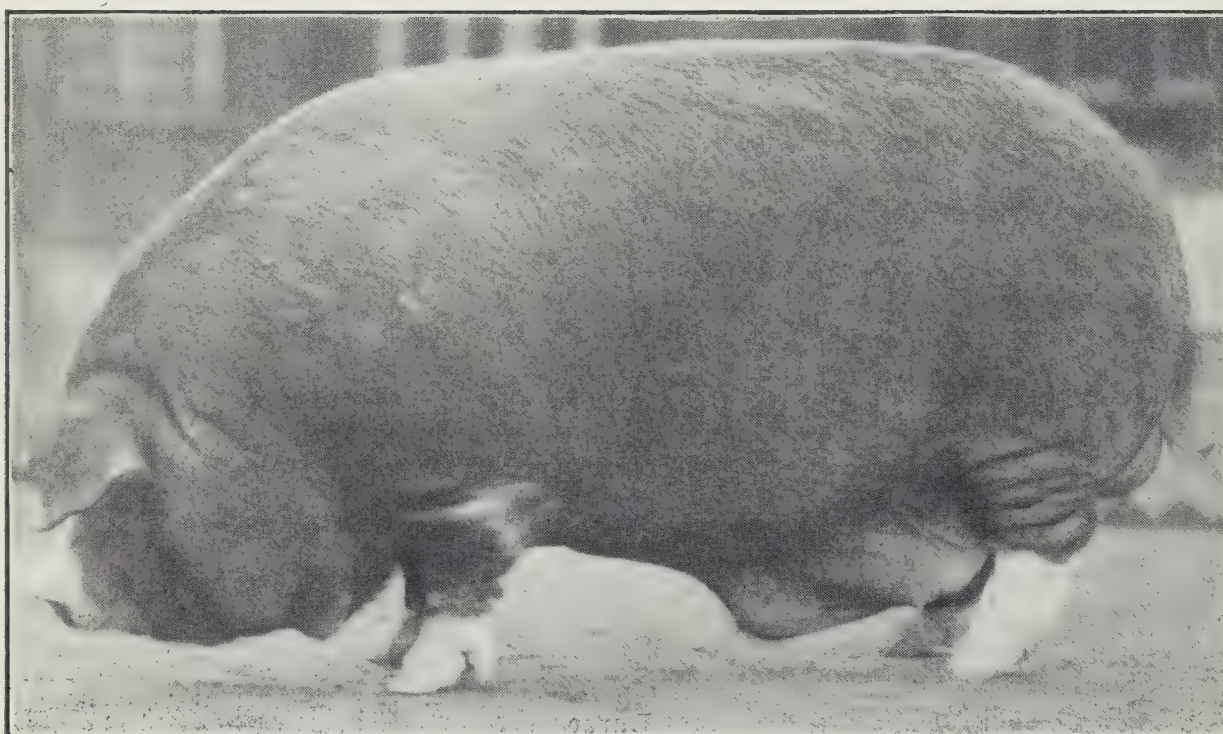
Yorkshire.



Duroc.



Berkshire.



Poland China.

A MEMBER: Do you use colony houses with a small lot, and do you feed the pigs in the colony house?

MR. ARCHIBALD: We never feed in the colony house. The houses are just as small and cheap as we can get them. For example, for winter use a cabin about 6 x 8 feet with as low a roof as possible, only so you can get in and clean it out. Build them small, with cheap lumber, with or without battens according to how they are exposed to the wind. A house of that size will comfortably house four or five sows. Mr. Rothwell has charge of the swine work at Ottawa, and he has often found, when the temperature was 15 to 20 below zero, that the sows were very comfortable with only a reasonable amount of bedding.

A MEMBER: At Ottawa there is a steady winter but where there is an open winter it would be muddy outside.

MR. ARCHIBALD: It might be that, but I doubt if that will bother you. I admit that is the trouble with the colony system. If we have mud in the early fall and then sudden freezing the pen is so very rough, the hogs do get a bit tender on the feet, until the ground is worn down smooth, or there is enough snow to level it up. So we like to move the troughs on to a somewhat smooth place as soon as it freezes. We feed outside altogether. Our sows always have access to clover hay and it is surprising how much they consume and make excellent use of it.

A MEMBER: You feed the hay the same as to sheep?

MR. ARCHIBALD: Yes.

A MEMBER: Have you a floor in those colony houses?

MR. ARCHIBALD: Yes.

A MEMBER: What kind of a door? A.—No doors.

A MEMBER: Do you moisten or steam the hay?

MR. ARCHIBALD: Feed the hay dry.

A MEMBER: Do you feed the sows outside until farrowing time?

MR. ARCHIBALD: Until within four or five days, and then we move them into a warmer place and leave them there for two weeks after the young pigs are weaned. Do not put young pigs out there. We have an expensive, elaborate piggery which will pass all criticism, it has 8½ ft. ceiling and the pigs cannot heat it. We have a single boarded, old shed that makes six large pens and that is so arranged, although the ceiling is 18 feet, that the pigs were comfortable. We have small straw sleeping berths in the corner of each pen, and the pigs do twice as well as they do in the expensive piggery.

A MEMBER: What do you first feed the young pigs?

MR. ARCHIBALD: Skim milk, we try to approximate the mothers' milk as closely as possible. If we have no skim milk, we use whey. Our experience is simply this, that the farmer who will feed his hogs on creamery by-products, such as skimmilk, buttermilk or whey which has not been pasteurized, is very foolish, because if there is any way you can spread tuberculosis among hogs, that is it. If you are using creamery by-products be sure they are properly pasteurized.

In addition to the skimmilk we use oats and middlings if available, otherwise shorts. Also a little oil cake, depending upon the condition of the pigs, and gradually build up on that ration, until the pigs are 3½ months old.

A MEMBER: What value do you put on buttermilk?

MR. ARCHIBALD: We really find that the acid in buttermilk is too great for newly weaned pigs. For pigs well weaned we find buttermilk is rated almost as high as skimmilk. For young pigs it may have a value of 60 to 75 cents

per 100 pounds, based on the value of other feed, and the way it is fed. We have never found buttermilk or skimmilk to be worth less than 20 cents per 100 pounds.

A MEMBER: What is the cost of one of the colony houses?

MR. ARCHIBALD: If you have the lumber, and do the work, you will find it will cost probably \$10.00. If you have to buy the lumber and hire a carpenter it would probably cost \$25 or \$30. We have tried hinged roof and hinged sides which could be lifted when desired, and they are most satisfactory for summer use.

A MEMBER: What kind of roof?

MR. ARCHIBALD: About a third pitch. With just strips over the boards to make them weather proof.

A MEMBER: Do you feed whey that is skimmed?

MR. ARCHIBALD: No, we have never had the product available. Generally speaking, it is worth half as much pound for pound.

A MEMBER: What do you value it at, if skimmed?

MR. ARCHIBALD: I do not know definitely but there would be considerably less gain.

A MEMBER: When do you start pigs on self feeders?

MR. ARCHIBALD: Start the pigs on a self-feeder before they are weaned or else wait till three or four months old. There is another advantage of the self-feeder that is, the pigs mature earlier by eating more, and you are turning your money over faster. Also, if the pigs are accustomed to it, the self-feeder is pretty much fool proof, and much more efficient than a poor hired man.

A MEMBER: If there is an outbreak of hog cholera would you slaughter the herd or use the double treatment?

MR. ARCHIBALD: Having no herd of my own, I can only answer that from a Government standpoint. If we had an outbreak of hog cholera I would report it to the Veterinary General and turn the matter over to him. If it was in the initial stage, I feel that I would treat it if I could get authority to do so. If it was apparently a bad case and the number of illnesses were large, I would clean it up.

THE CONSTRUCTION OF A SELF FEEDER.

(See Cross Section.)

Base.—The feeder should rest upon two pieces 2 inches by 4 inches running lengthwise, placed flat. These may act as runners. On these lay pieces of 2 inches by 4 inches to carry the structure.

Sides.—Make the sides 2 inches by 3 inches sheathed inside by $\frac{7}{8}$ -inch dressed lumber, as shown.

Gate.—Two arrangements of the feed-gate are shown. This is the important part of the feeder.

Note.—To ensure the constant feeding of the meal, some means of agitation is necessary. Otherwise the contents will block close to the bottom.

Make the iron bands (two on each side) connecting the control slide at the bottom, with the thumbscrew at the top, of light strap-iron $\frac{1}{8}$ -inch thick by 1 inch wide. When the meal ceases to flow, the pigs naturally root or nose toward the source of supply, and being able to move this flexible slide, which in turn presses upon and breaks the meal blockade—they are rarely left with a “dead” self-feeder. To prevent the pigs forcing the board too far in, it is, of course, necessary to place a cleat inside at either end of each slide. Allow about $\frac{1}{4}$ -inch play between the slide and the cleat.

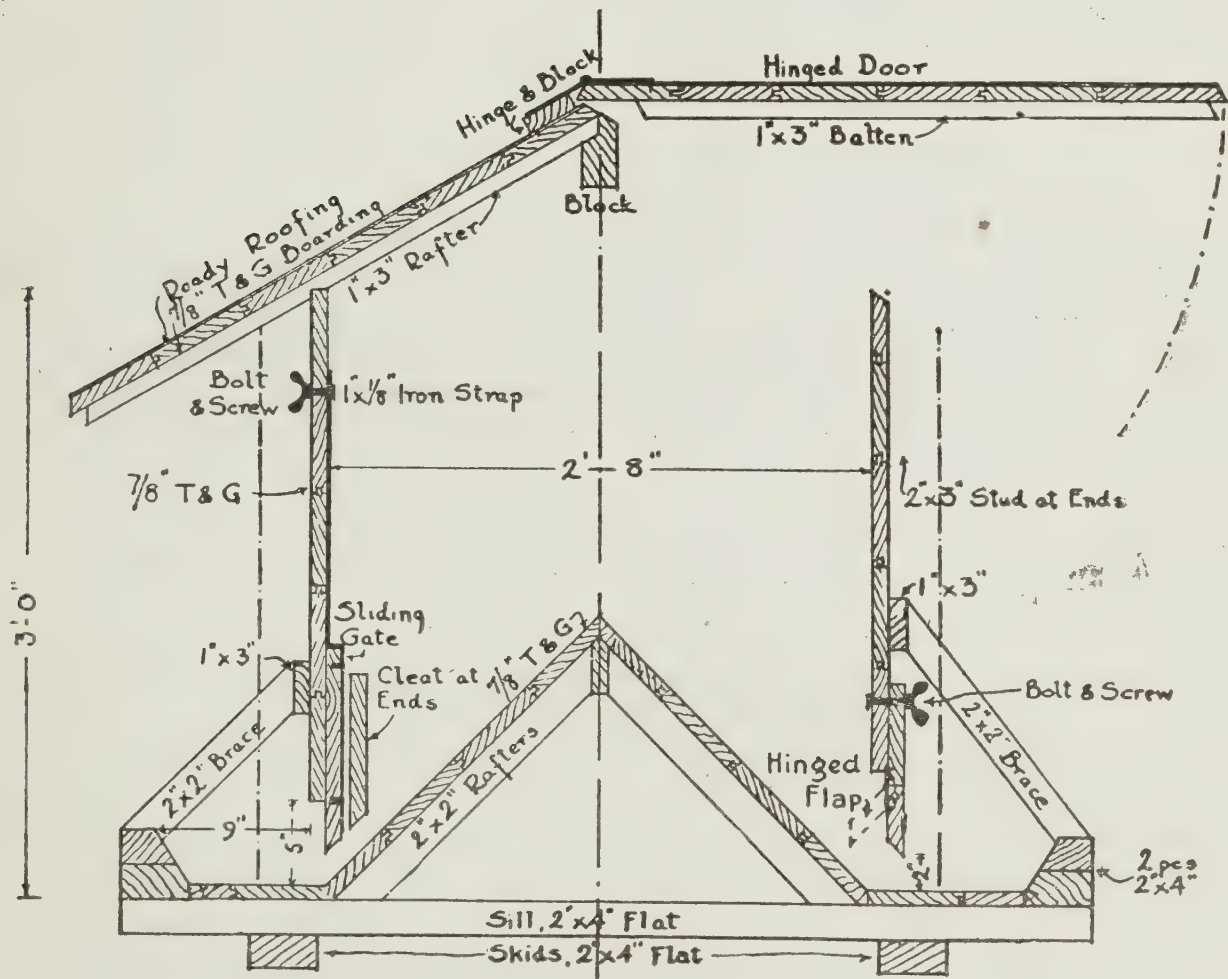
The second arrangement shown is simple, consisting of a section of the gate hinging inward. This the pigs may root against, causing it to break any meal stoppage. Possibly the first described arrangement will be found most satisfactory.

Food Troughs.—The front of the feed trough consists of one piece 4-inch by 4 inch (two pieces 2-inch by 4-inch). Two pieces 2-inch by 2-inch will be better for young pigs. From this front are placed 2-inch by 2-inch divisions, 12 inches apart, running up to a 1-inch by 3-inch piece laid along the sides as shown. For general use, a trough width of not more than 9 inches is recommended.

Roof.—The roof is laid on 1-inch by 3-inch battens, and covered with ready roofing. The hinging arrangement shown is simple, and prevents leaking at the peak. A prop

SELF FEEDER

SCALE



should be supplied to hold up the door, or roof when filling. It is best to continue the overhang of the cover so that the drip may not affect the troughs in wet weather.

Side.—The width is shown in the drawing. The length will depend on the number and size of the pigs to be fed. A 6-foot feeder (12 feet of trough) is a commonly used size, and will feed up to twenty-five young pigs.

Cost.—Built of new lumber the cost should not exceed \$10. Use dressed lumber preferably, and give the exterior a coat of paint.

Provided the requirements enumerated are met, changes in details may be suggested by the ingenuity of the builder. The photograph shows a home-made feeder, one of many used at the Central Experimental Farm, and in design similar to that already described.

SWINE BREEDERS WANT ACTION IN SECURING AND MAINTAINING A GREATER EXPORT TRADE.

After considerable discussion as to existing trade conditions and the possibilities of securing greater trade with Great Britain the following resolution on the motion of Mr. Caldwell, seconded by J. D. Brien, was carried: "That in view of the present situation in regard to the bacon export trade and its importance to the individual and national wealth, the committee appointed by this meeting suggest the appointment of a committee to confer with the Canadian Swine Breeders' Executive, so that united action can be taken to place our representations before the Dominion Minister of Agriculture, that we may secure our fair share of the export bacon trade, and with the object of the removal of present restrictions. And further we recommend that this committee be empowered to urge upon the Department of Agriculture the appointment of a permanent representative of the bacon industry of Canada.

ADDRESS.

W. F. WRIGHT, GLANWORTH.

I feel it is of interest to every breeder of pure-bred stock in Canada, this question of express and freight rates. Most of us heard Mr. Duke, of Ruthven, mention the fact that he paid a rate of 10 c. on a car of corn from Chicago to Detroit, a distance of 513 miles, and also paid a rate of 10c. on a car of corn which was shipped to Ruthven from Harrow, a distance of 13 miles. We all know that the long haul is the cheapest, but I think the case I have mentioned is out of all reason and that the live stock men should take some action.

Another thing I wish to speak about is the proposed increase in express rates. We know the express companies are trying now to get an increase in their rates of 50 per cent., and that application has been made before the Dominion Railway Commission. The dairy interests have complained against this increase in rates, but we hear nothing about the live stock interests being represented.

If the rates are increased 50 per cent. it means that the price of live stock is going to be considerably higher to the buyer or to the seller, as the case may be. In December, the Dominion Railway Commission passed a ruling that all express and freight should be prepaid after the 1st of January. I understand that ruling is not being lived up to, but as soon as they put that ruling into effect, if a man writes to you for a price on an animal, in order to know where you are at, you have to quote him a price delivered. If you have to quote the price delivered, if the express rates are increased 50 per cent., it will look like a pretty big figure. The rate to British Columbia would be \$18 a hundred, and when you add that to the purchase price of a 200 or 300 lb. pig, the price will look pretty big, and we do not know at present what the price of hogs will be for a little while. If the price goes down, there are a lot of people who will not pay the big price we would have to quote, delivered. They will not think of the express charges.

I think the live stock men should see what can be done. I think they should be represented before the Railway Commission by a good live representative. It may be, if a representative took the matter up fairly with the express companies that they might possibly leave the old rate on or give a reduced rate, or half rate. This should be taken up by the live stock men.

ADDRESS.

DR. TORRANCE, OTTAWA.

During the short time I was with you this morning it was brought to my notice that the compensation paid for hogs that are destroyed under the Contagious Diseases of Animals Act was not high enough. That was before us last year, and I took the matter up with the Minister of Agriculture, and in consequence of that the Act was amended and the compensation was increased. Previous to last year, the maximum for an ordinary pig was \$15, that was amended at the last session of the House to be \$20, and a corresponding increase has taken place with regard to pure-bred pigs. So the compensation is a little better than it was.

In considering the question of compensation, you do not want to lose sight of the very important fact that we never order the slaughter of an animal that is of any value, but only of that animal which is going to die of the disease, in the case of glanders and hog cholera. The owner gets compensation for that animal which, in reality, is clear gain. If the Government took no action, the owner would lose the whole of it. Looking at it from that point of view, the compensation is small if the animal is healthy but is a large amount to get for an animal that has no value at all. We are not destroying healthy hogs, but only those actually diseased, and those which, in the opinion of the inspector, are so advanced in the disease that there is no possibility of saving them by the use of serum. In the case of animals that may be affected in the early stages of the disease, which is shown by only a slight elevation of temperature, the inspector uses the serum, and in that way saves a large proportion of animals which otherwise, if left to themselves, would fall victims to this disease or perhaps have to be ordered to be slaughtered.

I would like to see the stock breeder get as much money as possible in compensation. It is important for the owner to notify the Department at once of any disease in his flock, because it enables us to get on the ground quickly. On that account we want to be liberal with this compensation. If this Association feels it has a just claim to have a higher compensation than is given at the present time, I would not oppose it. At the same time, I would like to point out to you that everybody does not look at this question of compensation from the standpoint of the stock raiser. The money paid out in compensation comes from the general funds of Canada and there is a feeling amongst some people that whereas if a shopkeeper, for instance, loses in the course of business, a large sum of money, through some of his goods spoiling or from some other accident, the Government does not step in and offer any compensation and why should they give compensation to the farmer who has lost something in the way of business. The answer to that is, in giving compensation to the farmer, we are facilitating the control of contagious disease which is one of the most important questions in the prosperity of our farming community.

As we look at other nations, not so favorably situated as Canada, and consider the number of diseases they have to contend with in their live stock, which we know nothing about, we are extremely fortunate in having so few problems of this nature to contend with. Although hog cholera is sometimes quite a troublesome question, I am glad to know that in Canada as a whole, hog cholera is very seldom seen. Outside of the garbage feeders, we have had very few outbreaks

of disease in Canada during the last four or five years, and in proportion to the hog population, the loss from hog cholera is extremely small. For the year ending March 31st, 1918, the total number of swine destroyed in Canada on account of hog cholera was less than 3,000. If you compare that with the millions of hog population, you can realize it is a very small matter. We want to keep that loss just as small as possible and if an increase in the compensation will help in any way, I will not be the one to oppose it.

Recently a change has been made in order to facilitate the importation of pure-bred double treated swine. Until recently, anyone who wanted to buy pure bred double treated animals from the United States was obliged to have a certificate that no hog cholera had existed within five miles of the farm from which this animal was coming, and in many cases, owing to the great prevalence of hog cholera in the United States, it was impossible to get such a certificate to cover a herd from which it was desired to purchase an animal. The herd itself may be free from the disease, and all the immediate neighbors may be free from the disease, but in that five mile radius there may be a farm where hog cholera had been in existence during the preceding two months. In conversation with the Chief of the Bureau of Animal Industry this question was thoroughly discussed, and he agreed that it would be perfectly safe to modify that regulation and make the certificate apply only to the herd from which the animals came. So, at the present time, we have regulations which make it possible to import pure-bred animals from a double treated herd with a certificate that the animals came from a herd in which hog cholera had not been found during the preceding sixty days. We also have the ordinary regulation of 30 days quarantine in the case of swine imported into Canada, and the certificate of health, and the hog has to be dipped in a disinfection solution. We try to make it impossible for a hog to carry any infection on his feet or coat. This modification will probably make it easier to obtain fresh blood from the United States. That regulation has been in effect two months.

As regards the double treating of swine in Canada, we are better without it. I am still firmly of the opinion that double treatment of hogs is not required in Canada. At the present time we have three herds under the double treatment. These are exceptions which have been made for special reasons. I do not feel that we would be justified in going far along that line. As I said last year, every time the double treatment is tried here, there is danger of hog cholera breaking out in that herd, and I am prepared to argue the point with any who doubt it. I have evidence to show this decision is absolutely sound.

In the State of Massachusetts, and several other States, they do not permit the double treatment of hogs at all. I think as long as our conditions are favorable in regard to this disease of hog cholera that we are far better without the double treatment. Where conditions arise and it can be shown it is advisable to double treat, I am prepared to do so. I do not think conditions are such in Canada that we should go into the double treatment of hogs on a large scale. Since the use of serum and virus first became general, we have restricted its use and it cannot be used in Canada except by Government officials and in that way we have safeguarded our interests. We have been warned by the experience of several of the United States, where this matter has been allowed to pass into the hands of the veterinary practitioners, and very serious results have occurred.

In the State of Tennessee, a State veterinarian claimed he could take a negro and in half an hour teach him all there was in the matter of double treating

hogs, and under the rules at that time, he licensed hundreds of persons to perform double treatment of swine. The result was, the sanitary condition of Tennessee in regard to hog cholera got much worse. That rule was annulled and the licenses cancelled.

Many other States have had experience along similar lines and have been obliged to take such action as we have taken here to limit the use of serum or virus to those occupying official positions.

Regarding dips. There is a new dip nearly every day, but many new things are not as good as the old ones. There are lots of coal tar preparations, like creoline, which are satisfactory for disinfecting live stock. When it comes to dipping hogs, you want to prevent the carrying of hog cholera, and you would not use the same dip as for sheep, but must use a dip that has distinct properties in killing bacteria which are a little different from the mite that cause scab in sheep, and which are more difficult to kill. For dipping hogs, the solution ought to be made from standard disinfectants, such as creoline or approved disinfectants, and sufficiently strong so they will have the desired effect. It is not necessary to dip hogs twice if the dip is made of sufficiently strong solution.

Q.—Is the dipping done on the American side, when hogs are imported from the United States?

DR. TORRANCE: It is done on the farm where the hog is owned, and is certified to by one of the American officials. We do not prescribe what the dip should be, it must be satisfactory to them.

Q.—Is a certain length of time required before shipment is made?

DR. TORRANCE: The hog has to be dipped immediately prior to shipment and we do not allow a hog to be imported without it being held for 30 days in quarantine.

Q.—Can a hog be imported without being double treated?

DR. TORRANCE: Yes.

Q.—Can a hog be imported with having single treatment?

DR. TORRANCE: Yes.

Q.—Would the treatment have to be within 30 days?

DR. TORRANCE: We make no restriction except in the case of double treated hogs. All hogs have to undergo a 30 days quarantine.

Q.—Would it not be a benefit to the swine breeders if we accepted the sworn statement of the local veterinary in place of the inspector of the Bureau of Animal Industry? Often it is a hardship placed on some of the breeders of the United States, perhaps the inspector has to travel 150 miles to reach this man's place to inspect one hog.

DR. TORRANCE: I am sorry to say that the veterinary profession is not wholly composed of honorable men. A person might be able to get a certificate to which he was not entitled. We felt, in confining this duty to an officer of the Bureau, that we got responsible men of experience, who will do what is right.

In regard to the double treating of hogs, we are willing to accept the certificate of the local veterinary if he can get his certificate O.K'd. by the Bureau officer. That removes the necessity for the official from the Bureau travelling all that way.

Q.—Just explain the principles of the danger there is of the disease of hog cholera spreading, from the double treatment?

DR. TORRANCE: The double treatment consists of the simultaneous injection of two different substances, one being an active virus of the disease which consists

of the blood from a hog actually in the acute stage of the disease, and that blood contains germs of the disease in a highly concentrated form which produces the disease when injected into a hog. If you inject this virus into a hog that is not protected, in any way, the chances are 100 to 1 that the hog will die of hog cholera, inside eight days. The other substance is the serum which is obtained from a hog that has been specially treated by giving it repeated doses of virus until that hog becomes hyper-immune. If those two substances are properly apportioned, the hog who is double treated should not undergo any sickness at all. He undergoes a very mild attack of hog cholera, so little that it produces no visible symptoms, and he is protected against the disease. If there is lack of proportion of these two substances, if the virus is too strong, or in too great proportion to the serum, or if the serum is not strong enough to counteract the virus, then that hog is liable to have the disease.

In the early days of double treating hogs it was a common thing to have a valuable herd of hogs being so-called protected, yet in reality they were given the disease in an acute form from which they died. Since then more experience has been gained, and those occurrences are not so frequent. There is always that risk that some slip may occur, and instead of protecting your herd you are giving them the disease you are trying to avoid.

In Canada we have not got much hog cholera, and I do not think we are justified in taking that chance. In the United States, where in some localities two out of three farms may be infected, and where the public stock yards are permanently infected, I would be as strong an advocate of the double treatment as anyone because, for unless they use the double treatment they will have great losses from hog cholera. In Canada we have very little, and the stockyards are comparatively free from infection, so I do not think we would be justified in running the risk incurred from using this double treatment.

Q.—Is there danger of having hog cholera brought on to the farm in case of any of the fluid being spilled in the treatment of hogs?

DR. TORRANCE: Yes, if carelessly handled. If it reached the hogs, the chances are they would get it; and if one is infected, he passes it on to another.

Q.—How long does the disease last without nature destroying it, such as the sun's rays?

DR. TORRANCE: Experiments have been tried to find out how long the infection will last, and according to the Sir Stewart Stockman, it requires fourteen days to destroy infection in manure and litter. That may be the case in England where they do not have much frost, but I have my doubts about it here. There is no question that the bright sunlight is a wonderful disinfectant, but it can only disinfect what it can reach.

Q.—How long will it take to destroy the infection if it is in the ground, protected from the sun?

DR. TORRANCE: We have no definite information about that, we can judge by the way hog cholera will sometimes break out in sections where they have been free for some time, which shows the infection must remain around the pig-sty for some time.

Q.—Can it be covered by whitewash?

DR. TORRANCE: Whitewash itself is a good disinfectant. It will not do to cover up dirty material, you must make the place as clean as possible, and all matter must be removed.

Q.—Would a year or two years destroy the infection, or is there any time limit?

A.—I think less than two years would destroy it. We have no evidence that it has survived more than three months.

Q.—Can you tell us when the embargo will be removed against British importation, provided there is no further outbreak?

DR. TORRANCE: About two months.

Q.—When an embargo goes on, it is for three months?

DR. TORRANCE: About three months as a rule. Lately we have adopted the rule that whenever the British authorities report that the disease is exterminated we take two months from that date. We have not yet received word that the disease is under control; as soon as we get word we will keep the embargo on for two months longer.

JUDGES.

CANADIAN NATIONAL EXHIBITION.

Yorkshires	Wm. Jones, R.R. 4, Mt. Elgin. (Reserve), R. J. Garbutt, Belleville
Berkshires	P. J. McEwen, Wyoming.
Poland Chinas	W. F. Wright, Glanworth. (Reserve), H. A. Dolson, R.R. 1, Cheltenham.
Tamworths	J. C. Nichol, Hurbrey. (Reserve), W. Elliott, Galt.
Duroc Jerseys	Cecil Stobbs, Leamington. (Reserve), H. A. Dolson, R.R. 1, Cheltenham.
Hampshires	H. German, St. George.
Chester Whites	P. J. McEwen, Wyoming. (Reserve), H. A. Dolson, R.R. 1, Cheltenham.

WESTERN FAIR, LONDON.

Yorkshires	A. Stevenson, Listowel. (Reserve), Wm. Jones, R.R. 4, Mt. Elgin.
Berkshires	G. A. Dewar, Wyoming.
Tamworths	C. Boynton, Dollar. (Reserve), H. German, St. George.
Duroc Jerseys	Cecil Stobbs, Leamington. (Reserve), R. H. Smith, Leamington.
Poland Chinas	I. N. Howe, Mossley.
Hampshires	G. A. Dewar, Wyoming.
Chester Whites	J. D. Brien, Ridgetown. (Reserve), Cecil Stobbs, Leamington.

CENTRAL CANADA EXHIBITION.

Yorkshires	John I. Flatt, Hamilton. (Reserve), R. J. Garbutt, Belleville.
Tamworths	J. J. Pearson, Dixie.
Chester Whites	Dan. De Courcey, Mitchell.

ONTARIO PROVINCIAL WINTER FAIR.

Yorkshires and Bacon Hogs	D. C. Flatt, Hamilton. (Reserve), R. J. Garbutt, Belleville.
Berkshires	Frank Teasdale, Concord.
Butcher Hogs	Frank Teasdale, Concord and H. German, St. George.
Duroc Jerseys	Dan. De Courcey, Mitchell. (Reserve), J. D. Brien, Ridgetown.

The Ontario Large Yorkshire Breeders' Association

The annual meeting of this Association was held in Toronto, February 4th, 1919.

OFFICERS.

President J. C. STUART, Osgoode.
Vice-President R. GARBUTT, Belleville.
Executive Committee J. C. STUART, Osgoode; R. GARBUTT, Belleville;
 J. E. BRETHOUR, Burford; WM. JONES, Mt.
 Elgin.
Secretary-Treasurer R. W. WADE, Toronto.
Auditor G. DE W. GREENE, Toronto.

DIRECTORS.

J. E. BRETHOUR, Burford.	H. CAPES, Wyoming.
J. K. FEATHERSTON, Streetsville.	J. C. STUART, Osgoode.
G. BARBOUR, Crosshill.	R. GARBUTT, Belleville.
WM. JONES, Mt. Elgin.	

REPRESENTATIVES TO FAIR BOARDS.

Central Canada Exhibition: J. C. STUART, Osgoode; J. E. STE. MARIE, C.E.F., Ottawa.

FINANCIAL STATEMENT

OF THE ONTARIO LARGE YORKSHIRE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING
DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$443 28
Interest	14 55
Grant, Ontario Swine Breeders' Association	354 04
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Total	\$811 87

Expenditures.

Grants—	
Western Fair, London	\$50 00
Canadian National Exhibition	100 00
Central Canada Exhibition	75 00
Ontario Provincial Winter Fair	100 00
Auditor	2 00
Hotel Carls-Rite, rental of room	5 00
Directors' expenses	19 25
W. R. Phillips, printing notices	90
Cash on hand	459 72
Total	\$811 87

(Sgd.) J. C. STUART,
President.

(Sgd.) R. W. WADE,
Treasurer.

The Ontario Berkshire Breeders' Society

The annual meeting of this Association was held in Toronto, February 4th, 1919.

OFFICERS.

<i>President</i>	H. A. DOLSON, Cheltenham.
<i>Vice-President</i>	H. B. JEFFS, Bond Head.
<i>Executive Committee</i>	H. A. DOLSON, Cheltenham; H. B. JEFFS, Bond Head; R. W. WADE, Toronto; P. J. McEWEN, Wyoming; W. W. BROWNRIDGE, Georgetown.
<i>Secretary-Treasurer</i>	R. W. WADE, Toronto.
<i>Auditor</i>	G. DE W. GREENE, Toronto.

DIRECTORS.

P. J. McEWEN, Wyoming.	H. B. JEFFS, Bond Head.
W. W. BROWNRIDGE, Georgetown.	ADAM THOMSON, Stratford.
H. A. DOLSON, Cheltenham.	CHAS. BOYNTON, Dollar.
FRANK TEASDALE, Concord.	

REPRESENTATIVES TO FAIR BOARDS.

Central Canada Exhibition: E. S. ARCHIBALD, C.E.F., Ottawa.

FINANCIAL STATEMENT.

OF THE ONTARIO BERKSHIRE BREEDERS' SOCIETY, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$239 03
Grant, Ontario Swine Breeders' Association	203 33
Interest	7 75
Total	\$450 11

Expenditures.

Grants—	
Western Fair, London	\$75 00
Canadian National Exhibition	100 00
Ontario Provincial Winter Fair	100 00
Auditor	2 00
Hotel Carls-Rite, rental of room	5 00
Directors' expenses	18 65
W. R. Phillips, printing notices	60
Cash on hand	148 83
Total	\$450 11

(Sgd.) FRANK TEASDALE,
President.

(Sgd.) R. W. WADE,
Secretary-Treasurer.

The Canadian Sheep Breeders' Association

The annual meeting of this Association was held in Toronto, February 4, 1919.

OFFICERS.

<i>President</i>	W. A. DRYDEN, Brooklin.
<i>Vice-President</i>	JAS. BRYSON, Brysonville, Queb ec.
<i>Executive Committee</i>	W. A. DRYDEN, Brooklin; JAS. BRYSON, Brysonville; LIEUT.-COL. R. McEWEN, R.R. 4, London; J. D. BRIEN, Ridgetown.
<i>Secretary-Treasurer</i>	R. W. WADE, Toronto.
<i>Auditor</i>	G. DE W. GREENE, Toronto.

DIRECTORS.

W. A. DRYDEN, Brooklin.	S. F. TOLMIE, Victoria, B.C.
COL. R. McEWEN, R.R. 4, London.	JAS. BRYSON, Brysonville, Que.
J. D. BRIEN, Ridgetown.	VICTOR SYLVESTRE, St. Hyacinthe, Que.
JAS. SNELL, Clinton.	ARSENE DENIS, St. Norbert Sta., Que.
W. H. ENGLISH, Harding, Man.	W. B. BISHOP, 85 St. Germain St., St. John, N.B.
F. T. SKINNER, Indian Head, Sask.	
R. KNIGHT, R.R. 1, Calgary, Alta.	

REPRESENTATIVES TO FAIR BOARDS.

<i>Canadian National Exhibition:</i>	W. A. DRYDEN, Brooklin.
<i>Central Canada Exhibition:</i>	W. A. DRYDEN, Brooklin; J. A. MUIR, Exp. Farm, Ottawa.
<i>International Show:</i>	COL. R. McEWEN, R.R. 4, London; GEO. TELFER, Paris.
<i>Eastern Canada Live Stock Union:</i>	J. D. BRIEN, Ridgetown.
<i>Western Canada Live Stock Union:</i>	S. F. TOLMIE, Victoria, B.C.
<i>National Live Stock Record Board:</i>	JAS. BRYSON, Brysonville, Que.; COL. R. McEWEN, R.R. 4, London; JAS. SNELL, Clinton, Ont.

FINANCIAL STATEMENT

OF THE CANADIAN SHEEP BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST. 1918.

Receipts.

Cash on hand as per last report	\$6,342 97
Registrations	6,638 26
Memberships	2,204 00
Interest	90 10
Total	\$15,275 33

Expenditures.

Directors' expenses	\$807 80
Grants—	
Ontario Sheep Breeders' Association	1,346 09
British Columbia Sheep Breeders' Association	59 11
Quebec Sheep Breeders' Association	1,129 89
Manitoba Sheep Breeders' Association	265 49
Maritime Sheep Breeders' Association	219 31
Saskatchewan Sheep Breeders' Association	221 53
Alberta Live Stock Union	213 29
Alberta Provincial Sheep Breeders' Association	213 29

Expenditures.—Continued.

Printing Records	3,506 85	
Printing notices and ballots	41 25	
Postage	100 00	
Record office, balance expenses, 1917	11 42	
Auditor	5 00	
Reporter at annual meeting	24 20	
Protectograph Company, check writer	10 00	
J. W. Brant, transfers	1 00	
Membership fees to Eastern Canada Live Stock Union	25 00	
Record office, for conducting records, 1918	1,650 00	
Cash on hand	5,424 81	
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Total		\$15,275 33
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(Sgd.) W. A. DRYDEN, President.		(Sgd.) R. W. WADE, Treasurer.

PRESIDENT'S ADDRESS.

W. A. DRYDEN, BROOKLIN.

I must congratulate the Canadian Sheep Breeders' Association on the very healthy condition of the organization in every way. The business of the Association increased considerably last year. The large expenditure of money has been due to the increased cost of office help, printing of our flock books, etc. That is the natural result developing from the war conditions.

I may say that the sheep breeders in Canada and other countries have found an increased price for their products from their flocks, owing to the war but notwithstanding that apparent prosperity, we are all very much pleased with the outcome and at the signing of the armistice. We believe this will lead to a final settlement of all controversies which shall be worked out on a basis of actual warfare. We are glad to know that our brothers and sons are returning to Canada's shore. I am sure that every member of this Association will extend to those who have been bereaved, their sincere sympathy.

It has occurred to me that one of the important works that will develop for this Association is to make arrangements with the American organization, for recognition. I think that applies to every live stock breed association in Canada. As far as this Association is concerned I think we should act through our organization to develop a legitimate trade with sections of our own country where it may seem that sheep breeding could be made a profitable venture. That should be our first start. Those who have lived in the Province of Ontario have learned by experience that the vast majority of our sheep find a market in the United States, and particularly so in regard to Shropshires. The Americans will take most of our surplus rams, and in fact animals of both sexes. It is a little out of the ordinary for us to right-about-face and consider altogether the demands of our own markets, without regard for the Americans. I do not think we should do that altogether. I think that every assistance should be given for the development of a market in Canada that will take care of our surplus rams.

With regard to the conditions that exist between the Canadian and American Associations, I might say at present they are not satisfactory. I know, as a breeder of Shropshires, and having had considerable to do with trade in the United States, that we sometimes meet with awkward situations in this country, with regard to registration which often takes considerable money before the transaction is completed. I had hoped that the committee that was sent to Chicago

would be able to accomplish something at that time but we found they did not deal with a matter such as that at their annual meeting. I was asked to join the American Board of Directors of the American Shropshire Association, as representing Canadian interests. They have not had their first directors' meeting since the annual meeting, but I understand the whole matter will be fully discussed and finally acted upon at the first meeting of directors which will be held some time during February or March. It is my intention, having thought of this matter for a good many years, to use every possible influence I can to bring to their attention the importance of recognizing the status of the Canadian Sheep Breeders' Association. I have an idea that if something was done in that way with the American Shropshire Association it would not be so difficult for the Oxfords, Cotswolds or any other breeds to arrange in the same way. If we can get the big organization to take the lead, I think it will be quite natural to expect the other sheep breeding associations in the United States to follow the example set for them.

In my experience in reference to Shorthorn matters in Canada, I might say we were up against the same proposition in regard to the registration of Shorthorns, where Shorthorn cattle were sold to buyers in the United States—that all ancestors should be recorded. In many cases that was a hardship, because it amounted to quite a sum for the registration of even one animal—\$8, \$10, \$15 and sometimes as high as \$40.

Our records are recognized as being beyond reproach, and we think the American Association should also consider them as such.

A committee was appointed and a meeting was arranged with a committee from the American Association. We got together and discussed the whole proposition. We anticipated there would be a good deal of trouble, that many of their men would not want to join with us, but we found they were quite willing that there should be reciprocity absolutely at par.

I see no reason why the Sheep Breeders' Association could not make similar arrangements to that made by the Shorthorn Breeders and have it on a 50-50 basis. In private conversation with several of the directors of the American Shropshire Association, I found they had a feeling that such a condition was bound to develop. They realize that the Canadian organization is becoming a large and influential association and we will have to have our own way. I think when the meeting of directors is held they will be ready to consider the proposition in a favorable light.

INTERNATIONAL INTERCHANGE OF PEDIGREES.

MR. GLENDENNING: According to the financial statement I notice the number of registrations for Shropshires increased from 1912 to 1918 from 1,418 to 3,410. I would like to know if there is any chance of having an exchange as between the American Shropshire Association and that of Canada. I find we have to have all our ewes registered in the American records, if we miss once, and a ewe is registered in the Canadian book, we are thrown out, and on that account we are compelled to register our ewes altogether in the American records. Is there any chance for reciprocity between American and Canadian Associations?

THE PRESIDENT: It is early to say definitely what the chance is. I have always desired that the registration of sheep in Canada and the United States should be on a fifty-fifty basis. The American Shropshire Sheep Breeders' Associa-

tion is the largest and wealthiest live stock association in the world. They are independent, and have not seen fit to recognize our small Canadian organization. I may say that a committee was sent to Chicago to confer with the officials of the American Shropshire Sheep Breeders' Association, but we did not get very far because they were hardly prepared to deal with us. We have hopes that in the near future we shall be able to enter into negotiations in a marked way and we anticipate that something will be accomplished.

A MEMBER: Do you think it would be possible to have the American Association accept a delegation from this Association at their annual meeting? We should get the sheep transferred at Ottawa in the purchaser's name.

THE PRESIDENT: As far as the American Shropshire Sheep Breeders' Association is concerned, applications are not dealt with by the Association at their annual meeting. The question will be brought up at their first directors' meeting which will be held some time during this month.

MR. GLENDENNING: You think there is a little hope.

THE PRESIDENT: I hope so.

CORRESPONDENCE.

A letter from E. L. Richardson, Secretary of the Western Canada Live Stock Union containing the following resolutions was read:—

Resolved: That Canadian Breed Associations be admitted to membership in the Western Canada Live Stock Union for an annual membership fee of \$25.00, one-half of which is for membership in the Eastern Canada Live Stock Union, and on-half for membership in the Western Canada Live Stock Union, and that such associations be entitled to appoint a representative to the annual meetings of the Eastern and Western Canada Live Stock Unions.

Whereas: The Dominion Government has made as one of the regulations under which grants are paid to exhibition associations a proviso that all pure-bred live stock exhibits must be recorded in the name of the exhibitor in the Canadian National Live Stock Records, of which regulation we heartily approve; and

Whereas: Owing to our great distance from the Record Office and the consequent time required to complete registration, exhibitors are frequently unable to comply with this regulation before time of showing their animals; and

Whereas: The refusal of the exhibition associations to permit the showing of such animals would create a hardship on the exhibition; and

Whereas: It has been customary in such cases to permit the exhibitor to compete and afterwards to furnish evidence that he has complied with said regulation; and

Whereas: In some cases it has been very difficult for the association to obtain this evidence, even although a portion of the prize money offered by the exhibition is withheld; and

Whereas: The Record Association can easily compel such exhibitors to comply with the regulation in question by refusing to record any further registration or transfer from such exhibitor until the animal or animals in question have been satisfactorily registered or transferred as above set forth.

Be it therefore Resolved: That this Union take the matter up with the different record associations and endeavor to secure their co-operation in enforcing compliance with the regulation in the manner herein set forth.

Whereas: Advances have during the past year been made by the Eastern Canada Live Stock Union and the National Record Committee to the Executive of this union with the object of bringing about the formation of a National Live Stock Council, and as a result certain negotiations have been carried on by individual members of the Executive, subject to and pending the approval or otherwise of the scheme by the membership of this union; and

Whereas: The plan of organization and the constitution which it is proposed to adopt are not satisfactory to this union;

Therefore be it Resolved: That the Executive of this union be authorized to continue negotiations with the above-mentioned bodies with a view to arriving at an agreement mutually satisfactory to all concerned for the formation of a National Live Stock Council, such agreement to be submitted to a general or special meeting of this union before being finally ratified.

THE PRESIDENT: It is suggested that this Association should join the Eastern and Western Live Stock Unions. Will somebody move to cover the point. This Association was a member of both Unions last year by paying \$25 for both memberships.

Moved by Mr. BOWMAN, seconded by Mr. HARDING, "That the Canadian Sheep Breeders' Association shall become a member of the Eastern Canada Live Stock Union and the Western Canada Live Stock Union." Carried.

THE PRESIDENT: The next point dealt with by this communication is with reference to the showing of live stock at different exhibitions. This Association does not make grants to exhibitions directly. Such grants are received indirectly through the Provincial organization. It may be in order for the larger organization to express itself on the point in question.

The Western Canada Live Stock Union suggest a hardship inasmuch as it has been customary for the Live Stock Associations to stipulate, in making their grants, that before any money is paid over to an exhibitor, which has been won by them, that all the animals exhibited shall have complied with the regulations in regard to ownership and registration. It is suggested, as a means of compulsion, that such a one as may be negligent in that regard, should not be able to record any of his animals in the future. I am not just sure that is a good principle to adopt. I do not agree with the principle that every animal shall be recorded as to ownership and registration before the prize money is paid. It seems to me, if I was showing sheep, cattle or horses and had everything, in regard to the main exhibit, in order, it would be a hardship if that money should be held because somebody has one sheep that is not recorded in right form. It hardly seems fair that money granted, and properly earned by animals that have complied with the regulations, should not be paid. I think the complaint is alleged on the stipulation that all animals must be properly recorded or the money will be withheld. In some cases, several hundreds of dollars have been withheld by the Live Stock Associations until some animal was properly recorded. That is the basis of the complaint, I take it.

Moved by Mr. J. D. BRIEN, seconded by Mr. KELLY, "That this meeting recommend to the different Provincial Associations, that as certain individuals do not comply with the stipulations of all bodies who grant prize money, their prize money be withheld, but that the other exhibitors, who complied with all the rules, their prize money should be paid." Carried.

THE PRESIDENT: You heard the recommendation of the Western Canada Live Stock Union in reference to the Live Stock Council. There is evidently a strong objection on the part of the Western Canada Live Stock Union to some grounds in regard to the constitution of the formation of a National Live Stock Council as agreed to by representatives of the Western Canada Live Stock Union who were present when the formation of the National Live Stock Council took place. The objection seems to be that the delegates, who were appointed as we thought in due order, had to swallow themselves at the recent meeting of the Western Canada Live Stock Union. It has been suggested that the matter be referred to the Executive Committee.

DR. TOLMIE: As President of the Western Canada Live Stock Union, and as one of the delegates who met the Eastern delegates, I am sure you will agree it was impossible for us to swallow ourselves (laughter). I think it was perfectly clear and understood, that any negotiations we carried on with the Eastern Union, were subject to approval by both Associations before being finally adopted. When

we went back to the Western meeting held at Brandon, the meeting did not approve of what had been done, and recommended that this matter be taken up again with the Eastern Canada Live Stock Union, as we felt we could improve the conditions that were laid down, by further discussion.

We recognize that two Associations of such importance, formed into one council, cannot hope to lean on the Record Board for finances for everything, and that was one of the serious objections taken by the Western men. At the same time, we fully recognize the necessity for having one central body representing the live stock interests from the Atlantic to the Pacific Oceans. We are heartily in sympathy with the movement and are willing to give it our fullest support. They did not like the way in which it had started out, and felt that by starting out on different lines we would be able to evolve an Association that would have a longer life than the Association as now constituted.

ADDRESS.

DR. C. D. MCGILVRAY, PRINCIPAL ONTARIO VETERINARY COLLEGE, TORONTO.

In alluding to the handling of the farm flock for productiveness, I might state that there is a noticeable dearth of addresses at Sheep Breeders' meetings in regard to matters pertaining to the preservation of the flock against losses through disease. This may be accounted for to some extent, by the fact that sheep are in general one of the healthiest classes of live stock. They are naturally healthy and are to a large extent free from many diseases to which other classes of stock are liable. For example, tuberculosis is extremely rare among sheep. In view of the fact that sheep are so healthy in Ontario, that seems an additional incentive for maintaining the health of our flocks and encouraging others to go into sheep raising. Sheep raising appears to flourish under extremes of conditions, namely, where land is cheap and poor, and where land values are high and intensive agriculture prevails. Too few sheep are, however, being raised on the average farm. This is to be wondered at, as their habits are clean and they also entail less labour and give better returns in comparison with other classes of live stock. In no country is there better inducements for sheep raising than in Canada, in that both the climate and land are favorable.

In establishing a flock the first essential is the selection of a place in which to keep them. Sheep thrive best on land that is high and dry. To get the best results and maintain sheep in good health a preference should be given to high pasture land and avoid keeping them on poorly drained land, or land that is subject to overflow with water at certain times of the year. Where sheep are kept on low lying damp pastures during wet seasons of the year parasitic diseases are more liable to occur. On the other hand where sheep are kept on high dry pasture land they remain comparatively free from parasites.

Among the worst enemies to productive sheep raising are parasites of which there are two main classes, namely, those which affect the surface of the body and those which affect the internal organs of the body.

Among the parasites affecting the surface of the body are lice, ticks, and mites, which cause scab. The presence of either of these parasites lessens the productiveness of the flock as they cause extreme itchiness resulting in loss of wool and general unthriftiness. They should not be allowed to exist on sheep and

can be prevented by means of dipping. With regard to dipping the flock this should be done at least once a year, immediately after shearing and when the weather is fine and warm. Where dipping in the fall is practised care must be taken not to dip during cold weather, as pneumonia may result, in some cases causing death. There are several commercial dips on the market which appear to be satisfactory. The kinds of dips which are in general sold commercially, are the arsenical preparations and the coal tar preparations. Arsenical dips are quite effective in killing parasites on the skin, and are satisfactory in that respect, but are objectionable owing to their being poisonous. The coal tar dips are gaining in favor on account of their cheapness and non-poisonous character. They are quite satisfactory for the treatment of lice and ticks. A decoction of tobacco also makes a satisfactory dip. The lime and sulphur dip is very effective for the treatment of sheep scab, but is not liked for ordinary dipping purposes, because it tends to injure the fibre of the wool and spoils the quality of the fleece to a slight extent. Most dips are improved by the addition of soap and pine tar which gives body to the dip and makes it adhere to the skin better and is more effective for killing the parasites. If the dip is used too thin it runs off the skin very easily and loses effect. The dip should also be used warm, and for best results should be kept at a temperature of about 105 degrees. Fortunately, sheep scab does not exist in Ontario, and it can be effectively prevented by dipping.

With regard to parasites affecting the internal organs of the body they are grouped under two general classes, namely, round worms, and tape worms. Of the round worms, the most common are the lung worms, the stomach worms, and the nodular worms of the intestines. The lung worms and the stomach worms are the most destructive. They both cause sheep to be unthrifty and to prevent growth in lambs, and give rise to considerable mortality at times. Sheep are more liable to be affected if kept on low lying damp pastures. In the treatment of stomach worms in sheep and lambs, the best remedy is a solution of sulphate of copper, which is commonly known as bluestone. A one per cent. solution is used and the dose is two ounces for the average sheep or good sized lamb. The best method of giving the treatment is by placing the solution in a small keg, placed on a stand about six feet or more in height. To the bottom of the keg is attached a rubber tube, the free end of the tube being inserted into the mouth of the sheep and the dose regulated. This method is used where large numbers require to be treated. Where small numbers are to be treated the dose can be given with an ordinary dose syringe or a funnel with tube attached. The treatment of lung worms is not very satisfactory unless the remedy is injected directly into the windpipe. Among the drugs tried are turpentine, gasoline, and tincture of iodine. There is a danger in some cases attached to the use of gasoline, as it is liable to cause pneumonia.

The tape worms chiefly affect the liver and intestines. The treatment for them and also for flukes has not been very satisfactory in sheep. It is remarkable, however, to note that fluke disease does not exist among sheep in Canada east of the Rocky Mountains. A condition which sometimes causes annoyance in sheep is foot rot. It most often attacks sheep where they are kept on low lying wet land. It can be overcome by moving them to high dry land and smearing the sore parts of feet with pine tar. Foot baths of ordinary sheep dip are also serviceable for treatment. We are fortunate in Canada, in being free from the contagious form of foot rot which is termed lip and leg ulceration. This disease has been quite prevalent at times in some of the States, particularly the State of Wyoming.

In view of the fact that the flocks of Ontario are in general free from many of the pests which cause disease it should be a great incentive to breeders elsewhere coming here to purchase.

Q.—Have you known of any cases of liver fluke in Canada?

A.—In all the sheep slaughtered at abattoirs, east of the Rocky Mountains, we have never yet found liver fluke.

Q.—Is it curable?

A.—The disease itself is not curable.

Q.—Have you had any experience with lung trouble?

A.—I have had considerable experience in regard to lung worms. The most effective treatment is to inject the medicine into the trachea. It is also advisable to market the lambs as soon as possible. You will find the loss is greatest between the ages of from six months to a year. The crisis of loss is reached at the ninth month. Infection takes place in the lamb just about weaning time. Keep the lambs separate from the ewes. Once you get them over one year of age the trouble or danger will be much less.

Q.—If you give an injection in the trachea is there danger of strangulation?

A.—Not as a rule.

A MEMBER: Tobacco dust left in the troughs is a splendid thing, and it is surprising how the sheep will help themselves to it. Others have resorted to putting bluestone in the water.

MR. LEE: I would like the doctor to give us a treatment for stomach worms.

DR. MCGILVRAY: The best remedies we have for the treatment of round worms are oil of turpentine and sulphate of copper solution. These occupy a high place in the treatment of round worms in the stomach and bowels. A proper use of bluestone solution would be two ounces of a one per cent. solution given as a drench. In regard to turpentine the average dose would be half an ounce. Oil of turpentine serves as useful a purpose in the treatment of worms as any agency which we have.

Q.—Will sheep take sufficient bluestone when mixed with salt?

A.—I would sooner mix the bluestone with feed, take a teaspoonful of bluestone for every five sheep and you can repeat that every day for a week or ten days. Bluestone is, however, more effective when given in solution.

DISCUSSION ON REGISTRATION AND TRANSFER.

MR. HARDING: There is a matter the sheep breeders can improve on. From time to time difficulties arise, from carelessness or neglect, in registering and transferring sheep. While I am not prepared to state a remedy to-night, yet I think the Record Board could apply some remedy to remove a great deal of this trouble.

Let me give one instance. Two years ago I bought a ewe that was in lamb. She was to be registered and certificate of service was to be supplied. After many efforts we are just getting the papers through now. It means that some lambs that were to be shown at the Winter Fair, could not be shown because they could not be registered in time.

A MEMBER: Mr. Harding's point is well taken. I have in my hand a pedigree with no less than four transfers attached. I am out \$300 on similar instances to that mentioned by Mr. Harding. I would suggest that the Record Board should put a tax on every breeder who neglects to take out a transfer.

MR. WADE: In the constitution of the Canadian Sheep Breeders' Association there is a provision that states, if a man fails to record sheep sold to another, and the matter is reported, he can be held to account and prevented from recording further. It is up to a purchaser to see that the sheep he buys is recorded, and if not recorded within the specified time, to either hold back the money or report it immediately to the office. If you wait for a year, it is hard to get action.

THE PRESIDENT: I think it is becoming for every breeder of pure-bred live stock to undertake the responsibility, when he sells any animal whatsoever, not only to furnish a signed transfer, but to forward the transfer with the pedigree, to Ottawa, to have the transfer recorded. He accepts the other man's money and should see that the ownership is recorded in the purchaser's name.

MR. HARDING: There are one or more of the American Associations who accept the National records, and *vice versa*. If you send an American certificate to the National Record office to have the animal registered are you entitled to leave the American certificate with the National or do you get that with the pedigree when the record is complete? I understand that some are not getting the American certificate back, and they wonder why.

THE PRESIDENT: When there is a fair exchange of pedigrees between the American and Canadian Associations, personally I would not care whether I got the American certificate or not, so long as I got the Canadian.

ADDRESS.

DR. TOLMIE, VICTORIA, B.C.

I think all will admit that we are particularly fortunate as stock men in Canada, to have at the head of the Ontario Veterinary College, a man like Dr. McGilvray. Perhaps he is not so well known to you men as he is to the western men, as he has lived in Manitoba nearly all his life. He has won the gold medal on this side of the line, and in the United States, at Chicago, against all comers. He has rendered valuable service in the Health of Animals Branch of the Manitoba College, and his being placed at the head of the Ontario Veterinary College has been a loss to the Province of Manitoba. He will raise the standard of the veterinary profession, and we want a veterinary profession second to none. They must protect the \$400,000,000 worth of stock in this country. I was interested in listening to what the doctor had to say about fluke on the Pacific Coast. We do not find it existing on the high land, but rather in sections that are subject to overflow. We have not had any fluke in British Columbia for a number of years. Our treatment was to get rid of the flock, to keep the sheep on the high land, and underdrain the low land.

With regard to the treatment for stomach worm. I have recently come into possession of a plan for administering medicine to sheep which is used in Australia. It consists of a barrel in which the mixture is placed, and a small piece of rubber tubing extended to where the sheep were to be dosed. One man handles the tube where it passes into the barrel and another man where the dose is to be administered, and they are able to dose 100 sheep per hour. The principal remedy is arsenic and sometimes bluestone. Through the western country we find the sheep are not increasing to any great extent. In British Columbia we have not more than 50,000 sheep. On the ranges of the upper country the coyote has been

considerable of an annoyance but the bounties have been increased and we hope to do away with that menace.

Sheep have decreased in price and wool is expected to decrease in price approximately 33 per cent., but we are going to have cheaper oats and barley which will have the effect of greatly increasing the live stock, and the sheep industry should increase to a greater extent than in the past. It will be easier for men to go into the sheep business by being able to purchase ewes at less cost.

This Association should make some organized effort to increase the consumption of mutton in this country. We have found out during the war that we were able to get people to let go of certain foods. We might properly conduct a campaign to increase the consumption of mutton and that would increase the flocks and create a larger demand for our rams.

We should sell in the best possible market. If you can get better prices in the United States, why not sell your products there. I never could agree with any argument to the contrary because we have Great Britain's example. They produce some of the finest cattle and other live stock that can be found in the world, and they sell in the open market and still maintain the highest standard of flocks.

In connection with the matter of registration between Canada and the United States, I think you should use every possible effort to secure that satisfactory condition. I am sure you are quite safe in leaving it in the capable hands of your President. During the past year we have taken up the same matter in connection with Holstein cattle. We met the American delegation in Detroit and found them very fair to deal with. They discussed the question freely, in a broad-minded manner and the result is that we have come to an agreement and hope to obtain ratification in a few days, and that it will pass at the American Association meeting in June. Then we will be able to exchange cattle between the two countries on a fifty-fifty basis.

When you take into consideration the fact that we have been selling Canadian bull calves and cows at the price realized, it is well worth the trouble. We would find it a great advantage to have the United States open to the British Columbia breeders. As long as there is difficulty and expense in connection with registration, it will deter any exchange between the two countries.

I wish this Association great progress during the coming year.

The Ontario Sheep Breeders' Association

The annual meeting of this Association was held in Toronto, February 5th, 1919.

OFFICERS.

PresidentGEO. L. TELFER, Paris.
Vice-President E. ROBSON, Denfield.
Executive Committee GEO. L. TELFER, Paris; E. ROBSON, Denfield;
JAS. DOUGLAS, Caledonia; W. WHITELAW,
Guelph.
Secretary-TreasurerR. W. WADE, Toronto.
AuditorG. DE W. GREENE, Toronto.

DIRECTORS.

CotswoldsJ. D. BRIEN, Ridgetown.
LeicesterJAS. DOUGLAS, Caledonia.
Lincolns E. ROBSON, Denfield.
OxfordsJ. E. COUSINS, Harriston.
ShropshiresW. H. BEATTIE, Wilton Grove.
Dorsets CECIL STOBBS, Leamington.
HampshiresGEO. L. TELFER, Paris.
Suffolks JAS. BOWMAN, Guelph.
Southdowns J. W. SPRINGSTEAD, Abingdon.

GENERAL DIRECTORS.

H. M. LEE, Highgate. W. WHITELAW, Guelph.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: J. D. BRIEN, Ridgetown.
Central Canada Exhibition: W. A. WALLACE, Kars; GEO. L. TELFER, Paris.
Western Fair, London: JOHN KELLY, Shakespeare; JAS. SNELL, Clinton.
Ottawa Winter Fair: JAS. BRYSON, Brysonville, Que.; LIEUT.-COL. ROBT. McEWEN,
London, R.R. 4; GEO. B. ROTHWELL, Exp. Farm, Ottawa; E. S. ARCHIBALD, Exp. Farm,
Ottawa.
Ontario Provincial Winter Fair: GEO. L. TELFER, Paris; JAS. DOUGLAS, Caledonia;
JOHN KELLY, Shakespeare; W. WHITELAW, Guelph.
Eastern Canada Live Stock Union: GEO. L. TELFER, Guelph.

FINANCIAL STATEMENT.

OF THE ONTARIO SHEEP BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$1,127 24
Vote, F. Blake & E. Darch, refund board bill	84 00
Sale of supplies to Dominion Live Stock Branch	266 15
Refund wages, J. Telfer and W. Johnson	271 50
Grant, Canadian Sheep Breeders' Association	1,346 09
Membership fees	45 90
Sale of bags	352 00
R. W. Wade, refund expenses	50 00
Stock in Canadian Co-operative Wool Growers	18 00
Interest	7 50
Rebate on wool	430 78
Sale of sheep skins	30 84
Proceeds from shearing machines	502 67
*Proceeds of sale of wool	465,478 06
Total	\$470,010 73

* Membership and transportation charges had to be deducted in making returns to shipper.

Expenditures.

Directors' expenses	\$595 73
Grants—	
Ontario Provincial Winter Fair	300 00
Western Fair, London	100 00
Canadian National Exhibition	200 00
Loan to co-operative cars	500 00
Postage	160 00
Labor <i>re</i> wool	3,051 08
Printing	102 30
Stock in Canadian Co-operative Wool Growers	1,000 00
Exchange	6 56
Interest charges	2 75
Express charges	179 59
Telegrams and telephone	33 65
Office help	553 60
Board of office staff at Guelph	584 30
Office supplies	406 50
Peter White, expenses <i>re</i> Hogle Case	114 80
Gurney Scale Company	473 00
Adjustments on wool, 1917	20 60
Membership fees to Eastern Canada Live Stock Union	25 00
Reporting annual meeting	20 20
Dodge Manufacturing Company, wool carrier	102 24
Preparation of building for wool—	
Lumber	231 19
Penfold Hardware Company, cement and sacks	180 70
Supplies <i>re</i> wool work at Guelph	373 11
Hotel Carls-Rite, rental of room	10 00
Auditor	25 00
American Sheep Breeders', subscription	1 75
Subscription to Textile Journal	4 00
Expenses <i>re</i> sheep valuating	25 60
Wool sacks	37 00
Board of Light and Heat Commissioners	14 78
Twine	13 75
Payment on Victory Bond	300 00
Canadian Co-operative Wool Growers, wool	5 53
South Manitoulin Wool Growers' Assn., expenses and sacks..	200 00
Expenses <i>re</i> shearing machine	127 37
Exhibition exhibit	137 45
Scythes & Co., repairing wool sacks	33 96
Freight charges on wool	3,997 83
Shippers, payment on wool	453 416 72
Cash on hand	2,330 09
 Total	 \$470,010 73

JAMES DOUGLAS,
President.

R. W. WADE,
Treasurer.

MR. GLENDENNING: What is the item of \$430.78 in the receipts as rebate on wool?

MR. WADE: In a few cases we found that in sending out advance checks before the wool was graded that the shipper was overpaid. The item referred to shows the money refunded by such shippers.

MR. GLENDENNING: I would like to know if the sheep shearing machines can be supplied by the Canadian Co-operative cheaper than we can purchase them from the trade?

MR. WADE: The Sheep Breeders' Association bought four machines because of the scarcity of labor last year, and it was thought to be a good thing to help the farmers to get their shearing done. We charged so much per fleece which amounted to \$502.67, and expenses were \$137.37. The machines are still the

property of the Ontario Sheep Breeders' Association, and we have put a price on the machines of about \$200 each.

Q.—What power was used?

MR. WADE: Gasoline.

MR. GLENDENNING: How does hand-power compare with gasoline power?

MR. WADE: Where help is plentiful and labor cheap, hand-power is very satisfactory. Where there are a number of flocks and a number can work together, the power machine can be used to advantage. There are eight or ten counties where power could be used to advantage.

A MEMBER: I would like to know why outside buyers were paying 65 cents for coarse wool when the Canadian Co-operative sold coarse wool for 60¾ cents.

THE PRESIDENT: In the early stages I know the wool buyers in Toronto were sending out prices to the coarse wool men that were higher than that quoted by the Canadian Co-operative, to make dissatisfaction, and one or two men did let them have their coarse wool. Mr. Wade will explain that.

MR. WADE: We have samples of our grades of wool here, and I am glad to be able to talk to sheep men about this question.

At the time the prize list was issued at the winter fair there was a statement given to every man which gave a comparison of American prices at Boston and prices right at Guelph. Last year the American Government fixed the price of wool. That price was not for wool in the grease but in the scoured state. When wool was quoted at \$1.40 and \$1.80—that was for scoured wool—and there was a price fixed for coarse wool. I will give you the Boston prices for our Ontario wool in the coarse grades, and give you our prices. The price at Boston for medium combing, clean wool was \$1.40 but there is about 47 per cent. shrinkage, so the grease price was 74.2. The price at Guelph was 76¼. If you sent your wool to Boston you would still have to pay something for handling, freight and storage, and at Guelph you had to pay something, and anything worth while is worth paying for. It cost about 3 per cent. for handling, which included sacks, twine, etc.

Here is a comparison grade for grade as between Boston and Guelph.

Grades of Ontario Wool	American fixed prices on scoured basis	Estimated average per cent. shrink of Ont. wool	American price per lb. at Boston for Ont. grades	Selling price obtained by Ont. wool growers	Net price to Ont. wool growers, 3½% selling charg's deducted
Med. Combing.....	\$1.40	47 %	74.02c.	76¼c.	74c.
Med. Clothing.....	1.37	46½ %	73.29c.	73¾c.	71c.
Low Med. Combing	1.28	44½ %	71.04c.	73¼c.	71c.
Low Combing	1.17	44 %	65.52c.	67c.	65c.
Coarse Combing.....	1.07	44½ %	59.65c.	60¾c.	59c.

The Americans put that value on wool and they have wool in much larger quantities than we have. The United States have 50,000,000 sheep and Canada has 2,000,000. When wool prices go up in the United States it influences our prices to the same extent, if there is no embargo. Therefore, if these were actual prices grade for grade, any man who pays more than that, looks like a philanthropist—if he did it all the time. I am perfectly willing to buy all the wool in Ontario, suppose it ran half and half as to grades, if you allow me to lose

5 cents on the lower grade and make 10 cents on the higher grade. While these buyers were paying 65 cents for coarse wool they were not paying 75 cents for the finer wool but paid 65 cents. Those dealers were pretty good business men to be able to strike an average price on wool that would let them out nicely.

A MEMBER: In disposing of the fine wool, could you have done better if you had not had the coarse wool to dispose of?

MR. WADE: We did not sell the wool, it was sold by the Canadian Co-operative and I think they sold it well. It did not make any difference. Because they handled so many tons of wool they had enough of any particular grade to fill any order. We had over 750,000 pounds of all grades. The coarse wool was a little harder to sell. The medium combing was bought up quickly because the manufacturers wanted it.

Q.—Therefore, the fine wool men did not lose anything?

THE PRESIDENT: No.

DISCUSSION OF SHEEP AND DOG ACT.

A MEMBER: I see an item re sheep valuating?

MR. WADE: The Ontario Sheep Breeders have always taken a prominent part in the protection of sheep from dogs. You heard it mentioned in the minutes that certain changes had been made in the Sheep and Dog Act. In cases where the local valuator's award is not considered fair, the owner of the sheep that have been killed or damaged can make application to our office for an expert valuator, who is paid so much per day and his railway fare. In some cases the expert valuator's expenses were a little higher than is ordinarily paid by the Department, so the Ontario Sheep Breeders' Association made good any deficit. There have been eight cases where we have acted in that regard.

PRESIDENT'S ADDRESS.

JAMES DOUGLAS, CALEDONIA.

I do not intend to take up much time as there is considerable business to be brought before the meeting. I wish to congratulate you on the good standing of The Ontario Sheep Breeders' Association, financially and every other way.

I wish to remind you again of the splendid assistance we have had from our very able secretary and his assistant Mr. O'Neill. I think those two men deserve a great deal more credit than they will get, for the work they have done in carrying out these wool sales so successfully.

We ought to do something to encourage sheep breeding throughout Ontario. I have noticed for many years how much good the Standing Field Crop Competition has done for the farmers throughout the Province of Ontario in helping them to grow better and cleaner crops. I think that plan might be carried out regarding the live-stock branch of farming. As we have a nice surplus, it would be a splendid idea to give prizes to say ten or twelve counties, just as an experiment, for the best kept flocks, to be judged on the farm, by means of the score-card system. Points to be judged might be, general condition of the flock, type of ram used, condition of the wool on the sheeps' back, etc. I think that

work could be done in the winter time unless the executive think better. Demonstrations could be given in docking, castrating lambs, and so forth. It would be well to try this as an experiment. I think we could work our hard worked secretary a little more, and perhaps he would be able to have the judge's expenses paid, for inspecting flocks along this line. If it was thought wise to try more than ten counties, it might be well to do so.

MR. J. D. BRIEN: I think the President's idea is commendable and I move that this meeting approve of it and ask the incoming board of directors to consider it. Seconded by Mr. Cecil Stobbs and carried.

ADDRESS.

PROF. H. BARTON, MACDONALD COLLEGE, QUEBEC.

Being asked to face this audience of expert sheep breeders seems to me as if I were being asked to bring coals to Newcastle. When the subject of flock improvement was proposed to me, it was a question in my mind as to whether the sheep breeders of Ontario would consider there was any real question as to that in Ontario.

I can assure you, in the Province of Quebec, we have a problem as regards flock improvement. It came as a relief to me when I heard the Chairman suggest a measure along this line because after all perhaps you have problems regarding flock improvement in Ontario also. May I add one word to the suggestion. As a result of our experience in Quebec, ranging over a period of six or seven years, I am of the opinion that this suggestion of your President, is an excellent one, but I would emphasize that the idea be extended beyond a matter of distributing prizes and made the basis of publicity and demonstration work on behalf of sheep.

We have made considerable progress in Quebec, in fact we are highly gratified with what has been done in the sheep business. There has been a number of agencies at work—and among them the extension service conducted by Macdonald College. Six or seven years ago, when we had some money to spend in extension work, there seemed to be splendid possibilities to make good use of that money on behalf of the sheep industry. In looking over the whole situation it seemed to me there was a large field for work with sheep. At that time, and for a considerable period before, the whole sheep business was in quite a lackadaisical condition. Sheep were more or less in a state of neglect. There was no real live interest in the business, and while we had a few good flocks here and there, there was really no activity in sheep. The time seemed opportune, and I believed that sheep would lend themselves to effort as well as any branch of livestock we could devote our attention to.

I shall briefly mention the features of our work on behalf of sheep, and then give you my impressions as a result of that experience and observation in regard to improvement of the flock. We appointed a man and put him in the field and decided to make sheep a real feature in our short course work, Farmers' club work and on the programme at any meeting in which we had a share. We set out to boost sheep in the English speaking districts of Quebec, and it is for that element I am speaking more particularly.

We thought we could give the Cheviot breed a trial because it seemed there was a special opportunity for that breed. In many outlying areas they were without sheep and where they had sheep they were scrubs, but the long wool variety predominated. I had the privilege of seeing something of the sheep industry in the old country and I was impressed with the idea expressed here to-night, but believe it to be a little extreme, that is, with regard to mixing breeds. I want to tell you that some of the most successful work being done in the old country, from a commercial standpoint, is where breeds are judiciously mixed. They are crossed, not for one but for three generations, and then they are brought back again. This is done in Scotland and in the northern part of England and especially with Cheviots and Leicesters, and with Highlands and Leicesters.

In our work in Quebec we started with three flocks and to-day we have 21. We adopted the return basis; a man got 9 ewes and a ram and had to return 12 ewes and 3 rams. Our demonstration flocks increased as time went on. We placed rams in districts on certain conditions and we added rams from other breeds. The only other breed we did anything with in the way of flocks was the Southdown. We had a two-fold idea, we wanted to place the Cheviots in good sections and make a basis for field work, and to serve as a demonstration centre and a source of illustration. We loaned a pure-bred ram for two years on the condition that at the end of that time, we would be furnished with a record along certain lines, and that the man concerned should buy a pure-bred ram, subject to our approval. We were not seeking a sale although it came our way if we wanted it, and that system afforded us a distribution for pure-bred rams if they were available, but we did not have enough rams to meet the demand.

Another feature was local ram sales, and these were a tremendous success. In one district alone we placed 37 rams, and that was a section where they had never had many pure-bred rams before.

Wool growing was one of the big objectives of our work. I think our condition in Quebec compares well with that of Ontario in this respect and I think to our advantage in some particulars. We started in a small way and built from the ground up. It took some time to prepare our wool and get it ready for market and we could not send it to a central point as you did in Ontario. For our case I am satisfied our process was right. We conducted demonstrations in shearing, docking, castration. We got in touch with the sheep men and created interest and anything short of that is of no use, as far as sheep flocks are concerned.

Then as to my impressions. If you ask me to hit the high spots in successful flock management; if you ask what are the weaknesses in the average flock and what are the explanations of poor flocks, this is the order in which I would place them:—

1. *Lack of interest, or true sheep instinct, concerning the breeding flock.* The doctrine that sheep take care of themselves has been preached too much. It has been said that sheep are the simplest kind of stock to handle and they are scavengers, etc.;—they are not. It takes a sheepman to handle a flock and to get results. It is not necessary to be an expert to be successful, but it is essential that interest should be taken and attention paid to the little things. The matter of feed is important. Place two flocks in the care of different men; with one man who takes a vital interest and who looks after the details, and the other man who pays no attention to details, and the difference in those two flocks will be astonishing. I had a chance to observe the work of good shepherds,

and the work of the average farmer on farms in Ontario and Quebec, and the difference in the result, with a good man on one hand and a careless creature on the other, was the difference between success and failure. The average flock is neglected, not taken care of from a housing standpoint nor from a feed distribution standpoint, etc.

2. *Importance of Ram.* Anyone who knows anything about sheep will point this out, but the evidence in our case is so clear cut that I want to refer to it. Out of all the Cheviot rams we have used on pure-bred and grade flocks, one has been worth all the rest put together. You can recall in your experience, I am sure, one, two or three rams that have stood head and shoulders above other rams in their record of performance. That is true of sires in general, but there is this difference that applies to the sheep industry, that the ram is not made as much of and is not regarded in the same way by the average individual, at any rate, as is the sire of other classes of live stock. How often do you see a ram advertised and any claim made as to its record as a breeder? You can pick up any official breeding paper or bulletin that carries advertisements and you will see the character of the advertisements on behalf of sires; there are pages of such advertising. The ram is every bit as important to the sheep business as these other sires are to their particular breed or class.

One of the things we hoped to do was to isolate some of these rams, and we did it so well that our ram requirements in some districts were reduced to a small thing, so far as outside orders were concerned, because a great many of the rams were obtained by being brought from one district to another, and the good ones were rated according to their actual performance. The importance of the ram is not fully appreciated, and not made the most of. The prevailing practice has been the continued use of ram lambs. I am not prepared to say, in some cases, a ram lamb will not give first class progeny, but I do believe, and our observation bears me out, that the continued use of ram lambs, year after year, is not the best practice. That is what is being done in the commercial flock in 99 cases out of 100.

3. *Preservation of the best Ewes.* Even if you go to the grade flock you will find 2 or 3 out of 10 perhaps that are outstanding ewes. When flocks are sold there is no clear cut policy of keeping the best of the flock and their descendants.

There is the matter of breeding lambs as lambs or holding them over as yearlings. Our practice has been for the most part to discourage the breeding of lambs. If the lambs are early and well developed, which is not generally the rule with the average flock, it is quite all right to breed, otherwise it is best to hold them over. I have no use for the breeding of undeveloped stock of any class. I do contend that the rank and file err on the side of immaturity and undevelopment, in the breeding of their growing stock.

4. *Housing.* It is a simple matter to house sheep in an inexpensive manner. We found that housing could be made attractive. The poultry people have demonstration houses through the Province of Quebec, and these have not only been examples of proper poultry houses but they have been high-water marks in the poultry industry. Even if a man has not got poultry, he may get some just to get one of those houses. Something along that line can be done for sheep. The interior equipment should have features that will tend to make for convenience and good clean wool. We had a lot of little models made and have taken them

through the country and the men were far more interested in those models than in anything we could say to them.

5. *Health.* I understand you had a talk yesterday on the diseases of sheep. I am not a veterinary, and do not profess to know much about sheep diseases. I will only mention a few things in this connection that appealed to me in the way the others I have mentioned did.

Good care is the first thing. The enemy of the sheep is the parasite and the parasitic problem is a difficult one for the most skilled veterinarian. I came across a number of incidents, and went into the question as fully as possible, and I do not know that I knew more about the subject at the end of my studies than when I started.

One of our common troubles is the nodular disease. A great many lambs have been killed, and we have had a lot of enquiries about it. That disease apparently comes with poor care and low condition, and the sheep is attacked when it is in a susceptible condition. Weed out these sheep; they are no good from a commercial standpoint. They are the ones that will fall victims to parasites and to the specific diseases peculiar to sheep. I will not say anything about ticks only that I was handed a pamphlet as I came to the door regarding dipping. We dip mostly to destroy ticks and we have been shown by those who know that dipping has a much greater significance than that. I understand a move is being made to feature dipping. We made a little start in it but have not pushed it because we thought it was coming from other directions.

6. *Udders.* The average farmer never thinks of inspecting the udders of his ewes. If there are one or two ewes that are the best of the flock, and the best milkers, and the lambs from those ewes are weaned in the same way as the others, the chances are, if he loses any of the flock, it will be the best ewes. It is only a matter of requiring common sense and a little attention but that is another evidence that our sheep are handled in a more or less haphazard and lackadaisical fashion. It is not thought necessary to give the ewes the attention that a growing colt or dairy herd receives.

7. *Pure-bred Flocks.* I might say a good deal about the pure-bred business but will only say one thing. As a result of our activity regarding sheep in the Province of Quebec, we have established a great many pure-bred flocks. To my mind, too many. That has been one of the unfortunate results. A few years ago, as you know, the bulk of the pure-bred ram lambs and ewes for breeding were purchased in Ontario. During the past few years, they have all been purchased in Quebec and that is cited as a great achievement, and I am willing to grant that there is a certain amount of creditable testimony in that statement. Our situation at the moment is this, we have a lot of pure-bred breeders who have got from ordinary to poor stuff. These breeders have got registration papers and they are expecting a sale for these ram lambs. There are perhaps two or three good individual ewes in each flock and if we could get the right kind of rams to put on the good ewes, we would have a reasonable chance to make some headway. But we have not got the right kind of rams.

Take cattle for the same illustration. You may have an average breeder who is capable of making a fine contribution, and who sometimes does; but where that breeder falls down is that he does not use a good enough sire. There is speculation in buying that untried ram lamb and yearling bull. I know the risks entailed in buying a sire with some breeding performance behind him, but in

spite of the fact that I appreciate those risks, that would be my objective, and the one I think that would give the most assurance and certainty of results.

What the Ontario sheep breeders can do for us in Quebec is this; supply us with real good rams and a nucleus of real good ewes, if necessary, to tone up our flocks and raise the standard higher but do not add to the trash we already have.

JUDGES OF ONTARIO SHEEP.

CANADIAN NATIONAL EXHIBITION.

Leicesters	J. M. Gardhouse, Weston. (Reserve), Wm. Clarkson, Weston.
Dorset Horn	W. H. Beattie, Wilton Grove. (Reserve), A. Ayre, Bowmanville.
Lincolns	Ernest Parkinson, Guelph. (Reserve), A. S. Gardhouse, Weston.
Hampshires	A. McEwen, Brantford, R.R. 2. (Reserve), H. N. Gibson, Dundee, Ill.
Suffolks	R. H. Harding, Thorndale. (Reserve), H. N. Gibson, Dundee, Ill.
Cotswolds	J. D. Brien, Ridgetown. (Reserve), W. Glaspell, Oshawa.
Oxfords	G. McKerron, Pewaukee, Wisconsin. (Reserve), D. Johnston, Appin.
Shropshires and Southdowns	H. N. Gibson, Dundee, Ill. (Reserve), J. G. Hanmer, Ames, Iowa.

WESTERN FAIR, LONDON.

Leicesters	Jas. Douglas, Caledonia. (Reserve), A. Easton.
Dorset Horns	R. H. Harding, Thorndale. (Reserve), Geo. L. Telfer, Paris.
Lincolns	J. D. Brien, Ridgetown.
Hampshires	A. S. Wilson, Milton. (Reserve), J. E. Jackson.
Suffolks	John R. Kelsey, Woodville. (Reserve), Dave McEwan.
Cotswolds	James Underhill, Claremont. (Reserve), Fred. Snell.
Oxfords	Fred. Lee, Simcoe.
Shropshires and Southdowns	A. McEwan, Brantford, R.R. 2. (Reserve), Wilfred Shields, Canfield.

CENTRAL CANADA EXHIBITION.

Lincolns	John Gardhouse, Weston.
Hampshires	W. A. Dryden, Brooklin.
Suffolks	Adam Barber, Hillsburg. (Reserve), E. Robertson.
Cotswolds	Sam. Dolson, Norval.
Oxfords	S. A. Logan, Amherst, N.S.
Shropshires and Southdowns	Stanley Logan, Amherst, N.S. (Reserve), W. A. Dryden, Brooklin.

CHICAGO INTERNATIONAL.

Leicesters	W. S. Dunnett, Caledonia. (Reserve), E. R. Wood, Freeman.
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ONTARIO PROVINCIAL WINTER FAIR, GUELPH.

Leicesters	W. A. Douglas, Caledonia.
Dorset Horns	H. N. Gibson, Dundee, Ill. (Reserve), Graham Walker, Chazy, N.Y.
Lincolns	Ernest Parkinson, Guelph. (Reserve), W. J. Gardhouse, Weston.
Hampshires	A. McEwen, Brantford, R.R. 2. (Reserve), Prof. Wade Toole, O.A.C., Guelph.
Suffolks	W. A. Dryden, Brooklin. (Reserve), John Miller, Jr., Ashburn.
Cotswolds	W. Glaspell, Oshawa.
Oxfords	G. McKerron, Pewaukee, Wis. (Reserve), H. S. Currie, Castor, Alta.
Southdowns	J. C. Duncan, Lewiston, N.Y. (Reserve), J. G. Hanmer, Ames, Iowa.
Shropshires	J. G. Hanmer, Ames, Iowa. (Reserve), A. McEwen, Brantford, R.R. 2.

OTTAWA WINTER FAIR.

Leicesters	W. S. Dunnett, Caledonia.
Lincolns	John Gardhouse, Weston.
Cotswolds	Chas. Shore, Glanworth.
Oxfords	W. H. Beattie, Wilton Grove.
Shropshires and Southdowns	D. E. McEwen, London, R.R. 4. ! (Reserve), W. H. Beattie, Wilton Grove.

The Ontario Cattle Breeders' Association

The annual meeting of this Association was held in Toronto, February 5th, 1919.

OFFICERS.

President or General DirectorJOHN GARDHOUSE, Weston.
Vice-President JAS. BOWMAN, Guelph, R.R. 7.
Secretary-TreasurerR. W. WADE, Toronto.
AuditorG. DE W. GREENE, Toronto.

REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: JOHN GARDHOUSE, Weston.
Western Fair, London: W. W. BALLANTYNE, R.R. 4, Stratford; D. O. BULL, Brampton.
Central Canada Exhibition: JOHN GARDHOUSE, Weston; J. J. HODGINS, Carp.
Ottawa Winter Fair: D. O. BULL, Brampton; WM. SMITH, Columbus; J. H. GRISDALE, Ottawa; JOHN GARDHOUSE, Weston.
Ontario Provincial Winter Fair: R. S. STEVENSON, Ancaster; JOHN MCKEE, Norwich; JOHN GARDHOUSE, Weston; W. A. DRYDEN, Brooklin.
Eastern Canada Live Stock Union: JOHN GARDHOUSE, Weston.
Proposed National Winter Fair: D. O. BULL, Brampton; H. A. DOLSON, R.R. 1, Cheltenham.

FINANCIAL STATEMENT.

OF THE ONTARIO CATTLE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$73 71	
Grant from Co-operative cars	5 00	
Total		\$78 71

Expenditures.

Carls-Rite Hotel, room for meeting	\$5 00	
W. R. Phillips, printing notices	1 20	
Auditor	2 00	
Directors' expenses	32 65	
Grant to Eastern Canada Live Stock Union	25 00	
Protectograph Company, cheque writer	5 00	
Rolph, Clark, Stone, Limited, printing cheques	6 00	
Cash on hand	1 86	
Total		\$78 71

JOHN GARDHOUSE, R. W. WADE,
President. *Treasurer.*

PRESIDENT'S ADDRESS.

JOHN GARDHOUSE, WESTON.

You will notice from the financial statement that this Association has not had very much money to do any special work. Last year, at the annual meeting, it was decided to change the name of this Association. A new constitution was prepared and a committee appointed. The name has been changed, the new

constitution prepared, and it will have to be dealt with by this meeting. The name of this Association now is The Ontario Cattle Breeders' Association. A committee was appointed and they waited on the Honorable Mr. Henry to point out some of the work the Ontario Cattle Breeders' would be capable of doing. We were able to convince him that the cattle industry in this Province of Ontario was of such importance that we should receive the same consideration as has been given to the Ontario Horse Breeders' Association. Therefore, instead of having \$78.71 as reported in the financial statement, we have nearly \$500 to our credit. We are in a very much better financial condition than we have been in any previous year. In fact, we have had no meeting of directors simply because we had no funds to pay the expenses, let alone anything for their time. I have been a director for some years and situated as I was, being close to the City of Toronto, it was easy for me to see the Secretary and discuss any matters we thought should receive attention, with practically no expense. The other directors could not be expected to come from a distance and bear their own expenses. For that reason the directors have not been called together, and very little has been done. We have been able to overcome that difficulty and will be able to get to work, and I trust much will be done for the cattle industry of the Province of Ontario. There is room for a great deal of improvement with respect to the different breeds of cattle throughout this Province.

All the breeds of cattle are fairly well represented, but I am doubtful if any of the breeds are as well provided with good animals as they should be in this banner Province of this great country.

I am pleased to be able to say that we meet under much more favorable conditions, in many respects, this year than we did twelve months ago. The armistice has been signed, and in a very short time we hope to learn that the Peace terms have also been signed, and that we will be able to get down to the reconstruction period and more normal conditions than we have been accustomed to for the past four years.

I think it is the duty of all live stock men, not only cattle breeders, to do everything they possibly can to try to improve the live stock of this Province, as well as assist other Provinces, by proper breeding and the carrying of foundation stock here in Ontario, for the other Provinces. I have always held that the Province of Ontario should be to the other Provinces very much like the old country has been to Ontario, in supplying their foundation stock. I know something of the western Provinces and something of the feeling of the live stock men of those Provinces, and I have heard them say repeatedly that they would much rather come to the breeders in Ontario for their foundation stock, than go 3,000 miles further to get it. Our stock can be landed in much better condition and at much less expense. I think that can be accomplished by the breeders in Ontario if they will set themselves to the task of taking advantage of the opportunities which are before them.

The committee appointed to draw up the constitution have prepared it and a little later on we will submit their report for your approval or disapproval as the case may be.

You will notice, according to the minutes, that last year an effort was made to impress upon the average farmer or breeder of commercial live stock, the advisability of using a better class of sire. We know to our sorrow that there are a large number of miserable, scrub bulls being used that should never be allowed to breed. It is difficult to know just in what way that work can be taken up to be

of the most good to the largest number of people so that something worth while could be accomplished. That is because of the lack of time and money at the disposal of this Association. It is certain there is a great deal that should be done along that line because it costs no more to raise a first class animal than it does to raise a scrub animal. The only difference in the maintenance of a good and poor animal is the initial cost. We do not say to the farmer that he should go into the pure-bred business, but we do say he should keep a lot of good, strong, healthy, useful breeding animals of whatever breed they represent. A good pure-bred bull should always be used, not simply because it is a pure-bred bull but because of its individuality and strain and has some breeding behind it to back it up. If we could get the farmers of this country to carry out that procedure for a few years, we might have a good deal better type of cow than is to be found on the average farm at the present time. That applies to any breed and is important. I hope we will be able to do some missionary work along that line.

DISCUSSION—CO-OPERATIVE SHIPMENTS OF LIVE STOCK TO WESTERN CANADA.

THE PRESIDENT: The detail of co-operative shipments for 1918 shows: 67 horses, 250 cattle, 180 sheep and 4 swine. As you know, the railway rates have gone up considerably and all expenses are much higher than they ought to be, and there is perhaps one of three things to do: The raising of the rates, the getting of the extra amount of money required from the breed Associations, or the getting of the Government to bear what deficit there may be. The rates have not been sufficient to cover the expense, and the extra expense is for feed, labor and for taking the cars out. Even lumber for fitting up the cars has increased in price. The rates that were in force were only sufficient to cover the expenses at that time, and you can readily see that it is impossible to carry on the business at the same rates. I really feel that the live stock shipped in these cars was to a great extent a benefit to the Ontario breeders in that it assisted to secure a market for their surplus stock. It is only right that the Government should bear the extra expense and that this Association should not be asked to raise the rates any higher than they are. If the expense of delivering the animal from the seller to the purchaser is too much, the probability is that that will stand in the way of a sale and the business would not be accomplished. We want all the interchange of business we can get, and in order to get that we have to keep the expense down as low as possible in order that the expense to the purchaser will not be too great. I would like to hear a free discussion about this question. There have been two raises between 1914 and 1918.

MR. RETTIE: When we started making shipments to the West we were told we would get half rate which amounted to 26c. from Toronto to Winnipeg; 36c., Toronto to Moosejaw; 44c., Toronto to Calgary. That was afterwards raised and we were given a rate not quite so good, and which was 36c. to Winnipeg, 46c. to Moosejaw and 56½c. to Calgary, and 57c. to Edmonton. Those rates were effective until the spring of 1918. We used to be able to get the men who went out in charge of the cars brought home free. We were also able to fill the cars up to 20,000 lbs. Then a change was made, and the man returning is charged 1c. a mile, and that was followed by a later change when we were not given any

cut on the man's fare returning home. The minimum of 20,000 lbs. was raised to 22,500, and then to 24,000. In September, 1914, the rates gradually went up again, and that is the rate we have to work on now—to Winnipeg, 48c.; Moosejaw, 60c.; Calgary, 74c.; Edmonton, 74½c. Up to 1915 when we had any stock for Edmonton we were allowed to bill the car via the main line as far as Calgary and make any stop we wanted, then bill the car to Edmonton at a through rate of 57c., which was ½c. more than the Calgary rate. The 57c. rate was figured as via the shortest route to Edmonton, which cuts off at Moosejaw. After 1915, if we wanted to get that 57c. rate to Edmonton, we had to bill via the northern route. If you had stock to go around via Calgary you had to pay an out-of-the-way charge for 191 miles. Up to 1915 they allowed us to bill to Calgary and did not say anything about the out-of-the-way haul. The rates in September, 1918, were practically a third more than in 1915 and there are all these other added expenses as regards weight of car and the return fare for the man in charge.

MR. WADE: In 1914 we went before the various Live Stock Associations and showed that we were behind about \$1,300, which was made up. Next year I had to go and ask for more money as we had gone behind that year \$1,400. I promised those Associations at that time that I would not ask for another cent. We got that money and were cleared for that year. Then a committee was appointed, of which Mr. Gardhouse was chairman, who went before the acting Minister of Agriculture, Mr. Macdiarmid and showed him that it was a good thing to get the stock from Ontario shipped to the west in a cheaper way, and that committee stated if they had \$1,500 to pay the cost of the man in charge, they possibly could get along on the same rate as they had. The acting Minister of Agriculture received the deputation very kindly and promised consideration. That \$1,500 was put in the Parliamentary estimates, and since that time it has been used to pay the man who went with the car, for his services, and anything that was charged to the shipper went for the fixing up of the cars and paying the freight.

We found that \$1,500 was not enough and next year we asked for another \$500. We got the \$500 which brought it up to \$2,000.

When the freight was increased by one-third, we were up against it. We took the matter up with the Western Provincial Governments because they were deriving a benefit from this stock. It was felt they had no right to pay money from those Western Provinces to assist the Ontario breeder to compete with their pure-bred stockmen. So we let that drop.

There has been a request to the Department of Agriculture to increase the grant from \$2,000 to \$3,500, in order that this trade shall go on. If that extra \$1,500 is put where it will help maintain the 1918 rate, it will be all right. We ran the January car on that supposition, and will run the February car likewise. If that \$1,500 is not forthcoming we will have to increase the rates by one-third, because they have gone up one-third. I would suggest that this and other Associations might wait on the Minister or Deputy Minister, and show the importance of our stock getting out to the west as cheaply as possible in these co-operative cars. I think you will find the rate fairly easy when you consider that hay was selling from \$20 to \$35 a ton, that hardware and every needed supply has increased anywhere from 20 per cent. to 60 per cent. We are paying war prices and trying to run the cars on a pre-war basis.

Ontario Horse Breeders' Association

The annual meeting of this Association was held in Toronto, February 6th, 1919.

OFFICERS.

President WM. SMITH, M.P., Columbus.
Vice-President JOHN A. BOAG, Queensville.
Secretary-Treasurer R. W. WADE, Toronto.
Executive Committee WM. SMITH, M.P., Columbus; JOHN A. BOAG, Queensville; GEO. PEPPER, 154 Bay St., Toronto; WM. GRAHAM, Claremont; JOHN GARDHOUSE, Weston.
Auditor G. DE W. GREENE, Toronto.

DIRECTORS.

Canadian Clydesdale Association.

WM. SMITH, Columbus.	F. RICHARDSON, Columbus.
PETER CHRISTIE, Manchester.	JNO. A. BOAG, Queensville.
JAS. TORRANCE, Markham.	W. SCOTT, Sutton West.
T. H. HASSARD, Markham.	J. HENDERSON, Thamesford.
W. L. MOSSOP, St. Mary's.	ROBT. GRAHAM, Toronto.
WM. GRAHAM, Claremont.	J. GOULD, Uxbridge.
JOHN MOORE, Queensville.	

Canadian Shire Association.

JOHN GARDHOUSE, Weston.	AMOS. AGAR, Nashville.
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Canadian Percheron Association.

E. C. H. TISDALE, Beaverton.	W. G. HILL, Queensville.
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Canadian Belgian Draught Association.

C. W. GURNEY, Paris.

Canadian Hackney Association.

J. M. GARDHOUSE, Weston.	H. M. ROBINSON, Toronto.
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Canadian Standard-Bred Association.

W. J. COWAN, Cannington.	GEO. PEPPER, Toronto.
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Canadian Thoroughbred Association.

E. B. CLANCY, Guelph.	G. B. ELLIOTT, Newtonbrook.
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Canadian Pony Society.

JOHN MILLER, JR. Ashburn,	JAS. CREECH, Lambton.
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REPRESENTATIVES TO FAIR BOARDS.

Canadian National Exhibition: WM. SMITH, M.P., Columbus.
Western Fair, London: WM. MOSSOP, St. Mary's; GEORGE CHARLTON, Duncrief.
Central Canada Exhibition: WM. SMITH, M.P., Columbus; S. HARVEY, Record Office, Ottawa.
Ottawa Winter Fair: ADAM SCHARF, Cummings Bridge; WALTER SCOTT, Sutton West; WM. SMITH, M.P., Columbus; FRED. RICHARDSON, Columbus.
Ontario Provincial Winter Fair: JNO. A. BOAG, Queensville; PETER CHRISTIE, Manchester; T. H. HASSARD, Markham; H. M. ROBINSON, Toronto.

FINANCIAL STATEMENT

OF THE ONTARIO HORSE BREEDERS' ASSOCIATION, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Cash on hand as per last report	\$397 61	
Government grant	500 00	
Total		\$897 61

Expenditures.

Printing	\$13 35	
Directors' expenses	239 80	
Auditor	3 00	
Special prizes awarded Ontario Provincial Winter Fair	342 00	
Office help	30 00	
Reporting annual meetings	31 00	
Membership fees, Eastern Canada Live Stock Union	25 00	
Protectograph Company, check writer	5 00	
Grant, Toronto Open Air Horse Parade	25 00	
Peter White, legal advice	10 00	
Cash on hand	173 46	
Total		\$897 61

WM. SMITH,
*President.*R. W. WADE,
Treasurer.

FEDERAL ASSISTANCE TO HORSE BREEDING.

C. M. MACRAE, LIVE STOCK BRANCH, OTTAWA.

The policy of Federal Assistance to Horse Breeding which went into operation in 1915 was the result of a careful study of the horse conditions that obtain throughout the country. Hitherto horse breeding had not made the progress that it might have made owing largely to the lack of co-operation amongst breeders which would enable them to obtain and retain the services of a good stallion. Through lack of concerted action on the part of mare owners the competition at a low service fee of cheap pure bred, grades and scrubs drove good stallions from districts except where horse breeding had been given serious and progressive attention. Breeders wishing to grade up their studs were forced to use the best horse that by chance stood for service in their district in that particular year. Accordingly, there was no systematic adherence to the use of one breed while community breeding was practically unheard of. The owner of a valuable horse after paying for maintenance, insurance, interest on his investment and the expense entailed in the collection of his fees had frequently little left from his outlay. In fact, he often came out in debt. As a result high-priced stallions were to be found only in the good horse-breeding districts which were, comparatively speaking, few and often far between. Further, while this condition of affairs existed there was no encouragement for importers to bring first class horses into the country hence it was that so many of the cheaper class were brought in. With a view to placing the horse breeding industry in Canada in a position comparable to that which it has attained in Great Britain and other European countries, in short to place it upon a sound, financial basis, the policy outlined hereafter was entered upon.

OUTLINE OF FEDERAL SCHEME.

The farmers of any district, wishing to work for the betterment of horse breeding by encouraging the use of sound, individually excellent, pure bred sires, may form a Breeders' Club for the purpose of hiring a pure bred stallion to travel their district for the benefit of the members. This Club, by organizing under and adopting the constitution and by-laws, and conforming to the various rules and regulations governing this grant, may participate in the Federal assistance given to such Clubs as hereinafter set forth:—

1. The Club shall guarantee the stallion owner a definite number of mares at a certain service fee per mare, said mares to be in good breeding condition, and not affected with any contagious or infectious disease.

2. All stallions named by Clubs for the purpose of securing Government assistance must be submitted to an examination by an authorized inspector.

3. The Secretary of the Club shall forward to the Live Stock Branch, with the regular application, a list of its members, also a copy of the memorandum of agreement signed by both parties interested. This agreement shall not become binding until approved by the Live Stock Commissioner.

4. The minimum service fee shall be not less than twelve dollars, and the maximum shall not exceed twenty-five dollars.

5. All service fees shall be collected by the Club.

6. Payment of service fees shall be made as follows: One-third of the service fee for each guaranteed mare shall be paid by the Club to the stallion owner at the end of the service season.

7. The remaining two-thirds of each service fee shall be paid when the mare proves to be in foal. That is to say, the remaining two-thirds shall be paid for only such mares as prove to be in foal.

8. At the end of the service season the stallion owners shall furnish the Live Stock Branch with a sworn statement setting forth the number of mares bred to his horse and the name of the owner of each.

9. The Live Stock Branch shall pay the Club an amount equal to $33\frac{1}{3}$ per cent. of the total amount paid to the stallion owner at the close of the service season on the actual number of mares bred but not exceeding the guaranteed number, on receipt of the stallion owner's statement and of a properly audited and sworn statement signed and declared by the President and Secretary.

10. The Live Stock Branch shall pay the Club a second grant equal to $33\frac{1}{3}$ per cent. of the amount paid to the stallion owner on the total number of mares that prove to be in foal, that is, $33\frac{1}{3}$ per cent. of two-thirds the service fee paid for each mare that proves to be in foal, on receipt of a properly audited and sworn statement signed and declared by the President and Secretary of the Club.

The policy from the beginning was favorably commented upon by breeders and stallion owners alike. During the first year but few districts took advantage of Federal Aid. However, since that time it has steadily grown in popularity and the number of Clubs has steadily increased. Although, comparatively speaking, only a short time in operation certain results have been practically demonstrated. On the one hand the scheme has proved decidedly advantageous to districts that have taken advantage of it. On the other hand it had done much to improve conditions for the stallion owners and to make their business a success.

ADVANTAGES TO CLUBS. .

By co-operation districts have been able not only to obtain but retain the services of good stallions at a very reasonable service fee. Although this scheme has only been four years in operation one or two districts have kept the same stallion for the whole period. Others have had the same horse for three years. Many, who have had the same horse for the last two years have again secured his services for the present season. In this way community breeding has been established and the systematic adherence to one breed made possible. The results thus obtained are bound to work a wonderful improvement in the horse stock of the country.

ADVANTAGES TO OWNERS.

Stallion owners whose horses are hired to Clubs are assured of a guaranteed number of mares and prompt payment of the service fees at a certain specified time. The trouble, annoyance and expense of collecting are eliminated and the competition of the cheap horse removed. The payment of one-third the service fee at the end of the service season should give the stallion owner sufficient ready cash to, generally speaking, pay for the season's expenses. Under average conditions and provided no accident occurs, the stallion owner should be assured of a certain return on investment. This lends the stability requisite in all successful business.

ADVANTAGES TO BOTH OWNERS AND CLUBS.

One advantage which has been clearly demonstrated is the fact that Club stallions leave a high percentage of strong, healthy, vigorous colts. At the outset some stallion owners thought that the guarantee of fifty per cent. required by the Live Stock Branch was too high, and many instances were cited to prove this contention. Now after four years it has been established that at least eighty per cent. of the Club horses have left over fifty per cent. of their mares in foal. Some have left as high as ninety per cent., while the average has been around sixty-five. This is undoubtedly due to the fact that Club members, generally speaking, breed a better class of mares and take better care of them. The stallion owner through having a guaranteed number is able to so divide the season that he does not have to overbreed his horse on any one day or during any one week. Thus, the stallion is at all times strong and vigorous and capable of transmitting same to his progeny. Some Clubs not only insist that none but good mares be bred to the Club stallion but they also decide just how many may be bred each day in order that the best results may be obtained. This is a commendable practice and might well be followed by all.

The putting of the horse breeding business on a financial basis is encouraging owners to buy better horses than heretofore. The inspection, which all stallions have to undergo, and the regulating as far as possible of the service fee is also having a beneficial effect. The various Horse Associations can do much valuable work by supporting the scheme and doing everything possible to educate farmers and breeders to the value of good breeding, feeding, care and management. Particular emphasis should be laid upon not only the using of good sires but also the breeding to these sires of good, sound, young mares, that are in good condition, followed by proper feeding, care and management throughout the gestation period and afterwards in the handling of the colt till maturity.

HIRE EARLY.

The experience gathered during the last four years is emphatically to the effect that Clubs should organize early. In fact, organization should not be put off later than the middle of January and better if it is done before that date. Those that are in a position to hire early get the pick of the best horses. The experience of the Branch is that horses hired early invariably pass inspection and are with few exceptions up to the required standard. Clubs that wait until the last minute report that they are unable to get horses up to the standard they expected, the trouble being that the good horses have either been hired or routed for the season. Hence it is that the late Clubs often experience much trouble and annoyance because the stallions they were forced to take were not acceptable to the Branch. If all Clubs would forward their applications on or before 1st of March, it would be to their own advantage as well as to that of the stallion owners.

In Scotland where the Scottish premium system has made the Clyde horse what he is to-day it is not an uncommon thing to find the best horses hired two and even three years in advance. In fact, some are to-day hired as far ahead as 1923. By this means the best horses are kept in the country and the industry accordingly benefited. The sooner the Clubs of Canada wake up to this fact and follow it, the sooner Canada will be in a position to export stallions rather than import them for the improvement of our horse stock.

Federal Assistance to Horse Breeding was inaugurated for the purpose of stabilizing the business and of helping equally both the breeder and the stallion owner. That it has met with the approval of the parties interested is evidenced by the recognition it has received from various sources. The following resolution passed at a recent meeting of the Western Canada Live Stock Union speaks for itself:

“WHEREAS: It is desirable in the interests of the horse breeding industry of Western Canada that in order to improve the standard of horses, the services of better pure bred sires should be made available;

AND WHEREAS: In comparison with all other schemes which have been tried, the plan now followed by the Dominion Government in giving aid in the hiring of stallions has proved, wherever adopted, to be the only satisfactory and permanent method of bringing about the results desired:

THEREFORE: The Western Canada Live Stock Union desires to place itself on record as recommending to all Governments wishing to assist the horse breeding industry in this way, the endorsation and encouragement of that plan.”

All wishing information regarding this scheme may obtain same by writing the Horse Division, Live Stock Branch, Dominion Department of Agriculture, Ottawa, Canada.

Eastern Canada Live Stock Union

The annual meeting of this Association was held in the Carls-Rite Hotel, Toronto, February 7th, 1919.

OFFICERS.

<i>President</i>	WM. SMITH, M.P., Columbus.
<i>First Vice-President</i>	JOHN GARDHOUSE, Weston.
<i>Second Vice-President</i>	F. L. FULLER, Amherst, N.S.
<i>Third Vice-President</i>	R. R. NESS, Howick, Que.
<i>Secretary-Treasurer</i>	R. W. WADE, Toronto.

DIRECTORS.

<i>Horses</i>	GEORGE PEPPER, 154 Bay St., Toronto.
<i>Cattle</i>	H. D. SMITH, Hamilton.
<i>Sheep</i>	J. D. BRIEN, Ridgetown.
<i>Swine</i>	J. E. BRETHOUR, Burford.
<i>Poultry</i>	J. H. SAUNDERS, London.

AUDITOR.

G. DE W. GREENE, Toronto.

FINANCIAL STATEMENT

OF THE EASTERN CANADA LIVE STOCK UNION, FOR THE YEAR ENDING DECEMBER 31ST, 1918.

Receipts.

Membership fees from Ontario Sheep Breeders' Association	\$25 00	
“ Ontario Swine Breeders' Association ..	25 00	
“ Ontario Horse Breeders' Association ...	25 00	
“ Ontario Cattle Breeders' Association ..	25 00	
“ Canadian Hereford Breeders' Association	25 00	
“ French Canadian Cattle Breeders' Associa-		
tion	25 00	
“ French Canadian Horse Breeders' Associa-		
tion	25 00	
“ Dominion Shorthorn Breeders' Association	25 00	
“ Canadian Aberdeen Angus Association ..	12 50	
“ Canadian Ayrshire Breeders' Association	25 00	
“ Canadian Sheep Breeders' Association ..	25 00	
“ Canadian Swine Breeders' Association ..	25 00	
“ Canadian Standard Bred Horse Society.	25 00	
Total		\$312 50

Expenditures.

Membership fees from Record Associations to Western Union	\$100 00	
Exchange on cheques	60	
Rolph, Clark, Stone, Limited, printing cheques	4 00	
Cash on hand	207 90	
Total		\$312 50

WM. SMITH,
President.

R. W. WADE,
Treasurer.

PRESIDENT'S ADDRESS.

Before we start. I want to say a few words to you. You may remember, during the last eighteen months that very strong efforts have been made to form what might be called a National Council, to act as adviser to the Minister, if necessary, or to those under him. There may be some little correspondence in connection with which I want you to be in a position to understand it and perhaps to be put right regarding it.

A year ago we had this matter under consideration, with the result that a Union was formed, with five men from the west and three from the east, from the Record Board, and as Chairman of the Record Committee I was the chairman of the United Council. We had a meeting in May.

It was understood it would take a good deal of money to run this Council, from ocean to ocean. Railway fares would be heavy. Dr. Tolmie and I would be able to travel on a pass, but we were to get the money from the different Associations, whatever that might be. The proposition has not been taken up at all warmly by the different Associations. The West has practically thrown in their lot against us. While they think we can accomplish something, in some ways, in other ways they say it will be too costly. So it has had a bad effect with the live stock meetings held here this week.

It appears to me that the National Council has died a somewhat unnatural death. From my viewpoint, I cannot hope for its existence any longer.

You heard at the banquet last night Mr. Crerar's statement in connection with the cold storage business. We never advocated spending any money at Montreal. I think it is throwing money away, as it is only for four or five months in the year that ocean going steamers call at Montreal. Halifax is the proper place (hear, hear), but I think we deserve some credit for bringing that about anyway. It appears they are going to spend money at Montreal, St. John and Halifax. If the effect sought is political, all right; but I think Halifax is the legitimate place.

Then there was another matter. We felt that two of the Railway Commissioners would retire last year, owing to length of service. We felt that at least one Commissioner, who was in close touch with agriculture, should be appointed. In a talk with Mr. Crerar one day he pointed out that one appointment should be a western man, and I agreed. He said he thought Dr. Rutherford was entitled to it. I believed the National Council would agree because Dr. Rutherford, while not a farmer, has been in close touch with farming matters all his life. He is now on the Railway Commission of Canada and we think he should know enough of farming life and interests, to make a very good Railway Commissioner.

Some time during the last month I tried to make myself believe it was possible, if the Council had fallen into the hands of younger men, it might have accomplished more. Whether there is anything in that or not I do not know. It is one of the few things I have been at the head of during my lifetime, which has not turned out to be a howling success. I regret it in a great many ways, however, I think we did our best.

There was this point which I want you to understand, that we were financing that Council from the Record Board, and it was costing a good deal of money, more money than I thought we were justified in spending, although we had your orders last year to go ahead. During the last couple of months nothing has

been spent. I make this explanation so you can understand why this meeting is called, and why the Eastern Canada Live Stock Union should be continued if possible.

CORRESPONDENCE.

LETTER *re* LIABILITY OF RAILWAY COMPANIES ON SHIPMENTS OF LIVE STOCK.

R. W. WADE, ESQ.,
Parliament Buildings, Toronto.

DEAR SIR:

At a meeting of the Executive of the Dominion Shorthorn Breeders' Association, held in Toronto, on June 11, 1918, the following motion was carried:

Moved by Messrs. J. M. Gardhouse and H. M. Pettit: "That this meeting regards the liability of Railway Companies on shipments of live stock as entirely inadequate, and that the secretary be instructed to write the secretaries of the Eastern and Western Live Stock Unions asking them to have their respective organizations make an effort to have the liability of railways on live stock shipments materially increased." Carried.

I am writing you at this time in accordance with the instructions outlined above, and trust that the Eastern Live Stock Union will be able to take energetic steps in regard to the matter.

Yours very truly,

(Sgd.) G. E. DAY,
Secretary, Dominion Shorthorn Breeders' Association.

The resolutions as passed by the Western Canada Live Stock Union were presented to the meeting. It appears in full in the report of the proceedings of the Canadian Sheep Breeders' Association.

LETTER REGARDING FREIGHT AND EXPRESS RATES.

128 Simcoe St.
TORONTO, Jan. 28th, 1918.

THE ONTARIO HORSE BREEDERS' ASSOCIATION.

DEAR SIR: There is a condition existing in connection with the transportation of horses that should be remedied at once. For instance: a car load of horses can be shipped to the Eastern States, which is Canada's best market, by shipping to Fort Erie, 20,000 lbs. at 13c. per 100 lbs., \$26 and paying \$5 to have it shipped across the track to Buffalo. The same condition applies at Niagara Falls and Suspension Bridge. If the car is shipped direct it is billed at 22,000 lbs. at 28c. per 100 lbs., \$61.60, to either Suspension Bridge or Buffalo. This is a very great and unreasonable handicap to the horse industry.

There is another matter which needs the attention of your organization and that is this: the classification and rates on horses and all live stock place the rate equal up to 100 miles, except when there is a difference in the division of miles as between horses and other live stock. From 100 miles up the horse rate increases very materially over that of the other live stock. So much so that the rate from Toronto to Winnipeg on cattle is 60½c., while the rate on horses is 70c. This also seems unreasonable and should be adjusted. Together with this charge on horses of 70c. is another unreasonable charge for the use of a 16-stall palace car for their accommodation.

Another matter that should be taken up is the question of express rates on horses. For example: horses can be shipped from Toronto to Montreal at a rate of 40c. per mile per car, while the rate from Toronto to Buffalo is \$1.15 or \$1.20 per mile per car, and the rate per mile per car from Toronto to Chicago is some 60c.—\$300 per car. The rate from Buffalo which is 11 miles farther from Chicago than Toronto is only \$180.00.

There are all matters which should be taken up and adjusted at the present time while objections are being made to the 15 per cent. increase on all freight rates and other matters of transportation are being gone into and adjusted.

Yours very truly,

GEORGE PEPPER.

LETTER *re* FREIGHT AND EXPRESS RATES ON POULTRY.

VICTORIA, B.C., Jan. 17th, 1919.

R. W. WADE, ESQ.,
Dept. of Agriculture, Toronto, Ont.

DEAR SIR:

I have been instructed by the members of our association assembled at annual convention, to ask your association's strong support in an endeavor to secure a reduction in express rates on shipments of pure-bred poultry to and from poultry shows. Our association respectfully urges that your association co-operate with all the provincial associations in the Dominion by writing to the Railway Commissioners and pointing out the exorbitant charges now obtaining.

Earnestly hoping that your association will not let this matter drop as it is apparent that unless a co-ordinated effort is made immediately there is a strong likelihood that the rates may even be increased.

Yours truly,

(Sgd.) J. R. TERRY,

Secretary, B.C. Poultry Association.

THE PRESIDENT: You heard the letter read that came from the Shorthorn Association. What is your view in connection with that?

MR. GARDHOUSE: There is no doubt that something should be done, if it can be done. The liability now is not very great. If this or other organizations could bring pressure to bear where it is required, and if that liability was made as we, as a Live Stock Association, think it should be, I think it would be accomplishing a great deal. It is a larger question than Provincial.

MR. PEPPER: You may find yourself in an awkward position in connection with that in presenting your case, for this reason, you appointed Peter White to represent the live stock interests two or three years ago, and arranged with the railway companies, subject to confirmation by the Railway Board, with regard to the liability and all conditions in reference to shipping. They made this arrangement, and in setting those prices regarding liability, the freight rate was made. But another condition was made by which, if you paid so much more, you could insure the animal or get whatever price you chose to set on it, and whatever price you chose to pay for the insurance. If you ask them to make a change, they would meet you with those two conditions. I don't think you can get around that, because they will say you agreed to that three years ago and will say, if you are not satisfied with the amount for which we say we are liable, you can pay the excess rate and be insured for the amount you desire.

MR. BRETHOUR: They have given us a new contract, and freight rate, they have broken the other contract.

MR. PEPPER: The freight rate was not changed by the railway or the Railway Board, it was changed by the Parliament of this country.

THE PRESIDENT: I regret very much I have to leave you but I have to go to another meeting and it is possible I may not get back. It is a meeting in connection with railway matters and was arranged for to-day at 11 o'clock; I had nothing to do with the fixing of the hour.

Mr. John Gardhouse, the Vice-President will take the chair and I will be back as soon as possible.

MR. GARDHOUSE: I am very sorry the Chairman has to leave. Is there any further discussion on the question of liability.

MR. BRIEN: It would take some time to go into that matter.

Moved by Mr. J. D. BRIEN, seconded by Mr. BALLANTYNE, That this question be submitted to the Executive Committee of this Union.

MR. PEPPER: Will these two gentlemen add that the Executive be asked to take up the question of rates, so that now the war is over, the rates may be placed on the old basis. The Government will not interfere and the railways will not take off the addition to the rates until you ask them, and the time to act is now that the war is over.

MR. WADE: I have one or two communications from Associations that met earlier in the week, regarding the increase of 30 per cent. in the express rates. They think it would be a good time for the live stock men to ask the express companies to put the transportation of pure-bred stock on the same basis as the freight rates, that is 50 per cent. basis.

THE CHAIRMAN: Have you any desire to act on the suggestion of Mr. Pepper.

MR. BRIEN: I would add that to the resolution.

The resolution as amended was then carried.

MR. PEPPER: We are the Eastern Live Stock Union and our business is local, and we should appoint a committee to go into the question of express rates. If you want to ship live stock from Toronto to Montreal, it is 40c. a mile. If you ship from Toronto to Hamilton, or any place near, it is \$1.25 a mile. That is unfair as between shippers and amounts to millions of dollars as compared to the little matter of shipping pure-breds. If the matter was put before the Railway Board and they got a proper view of it, they would not permit such excessive rates to be charged on stuff accumulating in Toronto, which is paid by the purchaser. After the stock comes to Toronto it is sold to the middleman and then transported to Montreal, and at a rate which is one-half that charged the producer. That is not fair and should be changed. They would not permit it to happen with railway fares which are 3c. a mile no matter where you travel. Why should there be a difference as between 40c. and \$1.25.

MR. WADE: I call your attention to the fact that the resolutions passed by those Associations was not first of all to get that 50 per cent., but to have some representative put the question before the Railway Board in case an effort was made to increase the express rates. It was a question largely of getting what we could, if we could not do any better, at least we should try to get 50 per cent. off the pure-breds.

MR. PEPPER: Why stop there? The express companies have made a statement to the Railway Board in which they showed in one case a profit of \$100,000 and in another, \$144,000. In 1918, up to the 30th of June, the Dominion Express Company made a profit of \$505,000 on \$2,000,000 worth of stock, which is over 25 per cent. Those things should be presented to the Railway Board, and if that is done, how are they going to beat you?

I want to say that you owe a great deal of credit to William Smith, M.P., for having saved the people of Canada upwards of \$20,000,000 between the 1st of July, 1917, and the 15th of March, 1918, because if your claim had not been presented as it was by Mr. Peter White, the increased rate would have gone on in July, 1917, but the argument we were able to put up prevented it. Sir Henry Drayton told us distinctly that the rate would not be raised and the rate was not raised until the Government raised it by Order-in-Council as a war measure. I am satisfied, if the case is properly put before the Railway Board that they will again say the rates should not be raised, that all people in Canada should be treated alike.

THE CHAIRMAN: Perhaps we could have both express and freight rates incorporated in the one resolution. Would it be all right to leave the whole thing in the hands of the Executive?

MR. PEPPER: I was paid by the Live Stock Council to fight this case, and was backed up by Mr. Smith and this organization. That meant I was to make trouble for the railways, and I made so much trouble they kicked me out. But we saved the people \$20,000,000. You are not going to succeed if you do not put some person there who will look after the producer and make trouble for the railways. You should appoint a strong transportation committee.

If you have a carload of horses in Toronto and want to ship them by freight to the United States, because you ship them to Black Rock they cost \$60 a car while if you wanted to ship them to Fort Erie it would cost \$30 a car. Now that is a handicap against our export of live stock to the Eastern States, which is the best market in the world. When I first made the objection they told me that was the international line, and because it is, a greater rate must be charged. I thought that was reasonable, but to my surprise, in looking it up, I found that the rate going into Detroit is no more than the rate to Windsor. Not much of our stuff goes west and it does not make much difference, but there is an immense amount of live stock that goes into Niagara Falls and Buffalo.

If they treat the passenger rates as the same all over the country, they must treat the producers of the country in the same way they treat the shippers.

THE CHAIRMAN: Would it not be better to incorporate the whole thing in one motion.

MR. BRETHOUR: You better add to the original motion, freight, as well as express. I suggest that be added to the former resolution.

MR. PEPPER: You have a communication from the Western Canada Live Stock Union, in reference to the National Live Stock Council. They have appointed their representatives and our part of carrying on that National Live Stock Council should be discussed at this annual meeting and a decision arrived at, instead of by the Directors or Executive.

THE CHAIRMAN: That is open for discussion.

The following resolution passed at the annual meeting of the Western Canada Live Stock Union and which appears in the report of the proceedings of the Canadian Sheep Breeders' Association was read.

MR. PEPPER: In reference to that, let me say that the object in forming the Western Union was to look after the interests of the live stock producers west of the Great Lakes, and the Eastern Union was to look after the interests of the producers east of the Great Lakes. From these two Unions there should be formed a National Live Stock Council, and it should be a Dominion body that could present the case of the live stock interests as a whole.

Mr. Smith gave you some inklings as to what had been done by the National Live Stock Council. You heard the speeches during the week by the Hon. Mr. Crerar and Professor Cummings along the same line. I want to say that was all started by the National Live Stock Council, and that council should be given credit for more than the work done since last May. Mr. Smith and Mr. Brien have been working for the past three years and have been fighting railway rates, cold storage transportation, ocean transportation, and the marketing of our products. The funds for that work had to be secured from the Record Committee or from the Government. That work in connection with the live stock interests

of the Dominion must not be allowed to drop. Out of 109,000,000 tons of freight in 1916, over 90,000,000 came out of or off the land.

You will always find the manufacturers join with the railways when an increase is asked for. Why? Because their tonnage is only about 15,000,000 tons out of 109,000,000 and the minute you put on an increased freight rate on raw material that comes to the manufacturer, they put the same rate on the article they send to you, and get back a return of \$10 to every \$1 they had to pay out. That is not fair to the agricultural producers of this country. I think this organization should wholly and completely join with the Western Union in carrying on this work and being able to do a lot better work because of the information obtained and presented to the present time.

MR. WADE: The Western Union say they are willing to consult with the Eastern Union and have a committee appointed that could deal with questions of Dominion-wide character. Western affairs can be dealt with by the Western Union. We have certain local conditions in Eastern Canada that the Eastern Union can handle. The two Unions might come together on some basis.

THE CHAIRMAN: It would seem that the Western Canada Live Stock Union are anxious to continue negotiations with the Eastern Canada Live Stock Union. Good work could be accomplished and perhaps if we had a resolution instructing the Executive Committee of the Eastern Canada Live Stock Union to meet the Western representatives, it might be a move in the right direction.

MR. FULLER: We in the East felt very kindly toward this National Council as we followed it as closely as we could. I came here for the purpose of learning all I could about it so that we in the east might get in touch with the affairs that pertain to the whole of Canada. I have listened with a great deal of pleasure to this discussion, and have learned a good deal. It is evident that the Western Canada Live Stock Union is the most important organization in the west, and the Eastern Union is the most important in the east.

It appears to me this National Council was simply an executive appointed jointly by the Eastern and Western Live Stock Unions. And it seems that is the body should deal with the other questions. What Mr. Wade has said is absolutely true, that the Western Council is perfectly capable to deal with certain local things in the west and the Eastern Council is capable to deal with local things in the east, that would not interfere in any way with the joint executive. I think there should be a resolution appointing a committee of five from the east to meet with a committee of five from the west for the purpose of settling this question. I am sure that we in the Maritime Provinces are very much interested in this National Council.

MR. BRETHOUR: I have been, to some extent, identified with the work of the Eastern Live Stock Union and have watched the evolution of the National Council and when I attended some meetings here and heard the discussion that took place, which was largely speeches made by gentlemen from the west, I could not help but be astounded. A year ago this National Live Stock Council was organized. How was it organized? Simply on the suggestion presented by the western men. I think I am correct in making this statement. The western men were down in Ontario at that time and opposed certain steps which we in the east had thought best, then there was a compromise, as I understand it, and out of that grew the National Live Stock Council. After the Council was organized, the gentlemen from the west attended that Council, took part, and carried out the work which Mr. Pepper has outlined.

MR. BRIEN: It seems they were not representatives.

MR. BRETHOUR: We understood they were accredited representatives. There is a tangle somewhere. I think it is best to have the matter adjusted so we can better understand the objection of the western men. If they say these men who were sent here, were not their representatives—

MR. GARDHOUSE: They have said that.

MR. BRETHOUR: That evidently upsets the whole Council. If they made the statement that those men were not accredited representatives, the whole council was null and void.

MR. WADE: The Western Union say they will not approve of the constitution as adopted by the meeting of the three bodies.

MR. BRETHOUR: I suppose, if they do not acknowledge that they were representatives, the only way to get an adjustment is to get a committee appointed, comprised of properly accredited representatives. I think the appointing of a committee would be in order.

MR. WADE: It would appear to me, if you say it is only a misunderstanding, as it were, and formed a new committee, and you have it all straightened out—you would not have it straightened out at all, because the constitution of the National Live Stock Council is not up to us, not to those of the Western Union, but to the Live Stock Record Associations, and they are asked to finance it to the extent of 10 per cent. if necessary. It would mean \$3,600 a year to some and \$2,000 and \$1,500 to others. I have not had a report from any Record Association saying they are willing to pledge themselves to the extent of 10 per cent. We must see how it will affect the two Unions as it was outlined to be financed by the Record Associations.

THE CHAIRMAN: In my mind there is no doubt about it, that the proper thing would be to do exactly what the western people have done regarding the matter. Let us refer the matter to the Executive and let them carry on negotiations to see if something definite can be arrived at.

MR. BRIEN: Is it the opinion of this Eastern Canada Live Stock Union that such a body as the National Live Stock Council is necessary. It should be a uniform opinion. If you do not think such an organization is needed, or if this Executive could do the work, we might as well get that settled first.

THE CHAIRMAN: It seems to me to be necessary for the east and west to get together on some common ground and arrive at a conclusion that will be satisfactory to both, get into working shape and get the finances to carry it on.

MR. FULLER: The joint action of the two organizations would carry more weight than the single action of the two. To our mind, in the Maritime Provinces, this is an important matter and does not seem very difficult to solve. Appoint a committee of the two organizations' executive, and call it a National Council if you wish and it will not interfere with the local affairs that come up in either the east or west. I would like to see a motion along that line.

MR. PEPPER: You are losing a very important point. That National Live Stock Council has to take care of such situations as I have already outlined in reference to the increase in freight rates, and the unreasonable charges in localities, etc. And to work out such policies would require the services of two or three men, and you cannot get cheap men, because cheap men are dear at any price. They should get the notices sent out by the railways, arguments by the railways and then prepare their case. You cannot accomplish that with the Western and Eastern Unions working separately. They cannot raise the funds which are absolutely necessary.

THE CHAIRMAN: That is what the western men ask, to get this organization and then, by working together, get to some point.

MR. PEPPER: Mr. Brien asked if it was necessary to have such a council.

MR. BRIEN: The reason I asked was for the purpose of argument—to find out.

MR. PEPPER: I want to say that it is absolutely necessary to have such a council to act for the whole Dominion, to get the money and to see that the work is carried out. You cannot do that if you do not have the National Council. In the report of meetings in connection with the live stock industry, the name "National Live Stock Council" is most prominent of all, which shows an appreciation of the power of the National Council. It would not have the same effect if it was the eastern or western. It must be national. They must finance and engage the services of someone who will give his entire time and attention to the work of the Council.

MR. BRIEN: There seems but two things to decide. First, the question of finances, and the question of representation.

MR. WM. SMITH: This is a little out of order, but I would like to know if all the Breed Associations have joined and paid their fee to this Association. I want to know whether every member here who is talking and moving resolutions is an accredited member.

THE CHAIRMAN: I understand from the Secretary that they have.

MR. H. D. SMITH: The National Council was built from the top down, without complete co-operation on the part of the Western Union. We have a Union in the west that has been going on for years and doing good work. There is only one way to get unity of action and that is by getting the hearty co-operation of the Western Union. It is necessary for representatives of this Union to find out exactly what plan would meet with the approval of the Western Union. Get the representatives of the east and west together, let them form a plan and report back.

MR. BURNABY: I am very much interested in all live stock and farmers' organizations. The Holstein Association made out an application form yesterday to join this Union and with your permission I would like to take about two minutes of your time.

THE CHAIRMAN: All right.

MR. BURNABY: I have been talking with a great many about this National Live Stock Council, both in the west and in the east and I am sure that the Western Union want to see it go on. I spent a long time talking with a member of the Western Union yesterday and his expression was, "I hope to see, after the wreckage is cleaned up, a live organization."

It appears the delegates from the west took the constitution back and it was not satisfactory to their Union. That is not an extraordinary thing. It would have to be ratified by the Western Union in any event. As I understand it, they will appoint delegates to come and rehash the matter. You can get together and settle that part.

As regards the necessity for the organization, I think it is absolutely necessary. It has always been desirable but to-day I think it is necessary, and it can be brought about. Regarding the financing. Mr. Wade said none of the Breed Associations had contributed 10 per cent. Well, I know of two Breed Associations that are quite prepared to pay 10 per cent., but they understood the Council was in a dying state just now and were waiting to see what would happen at this meeting. I believe all the Breed Associations are prepared to back it up with their finances.

What we want to-day is an organization that can speak for organized agriculture from the Atlantic to the Pacific Oceans. What I would like to see, and I think other men will bear me out, is that we should get this National Live Stock Council organized as representing live stock interests; then let us get the fruit men and the grain men, and let us link up the fruit, grain and live stock men and then we have a complete organization, that no power can afford to ignore.

MR. WADE: I said I heard of no Record Association signing a contract by which they agreed to pay 10 per cent.

MR. BURNABY: I believe they will when we have a complete organization, but it is common talk that the National Council was stagnant. In any event, I believe they are waiting for us to get our feet on a solid foundation, and they will come forward. I know it is so with the Holstein Association.

THE CHAIRMAN: Mr. Brant can tell us about that.

MR. BRANT: I have not anything particular to say, other than to answer the question. I think there are four already signed and in another case a resolution has been passed ordering it to be signed.

THE CHAIRMAN: Someone asked what Associations had already signed. *Aberdeen Angus, French-Canadian Cattle, French-Canadian Horse, Red Polled,* and the *Standard bred* has ordered it to be signed.

MR. BURNABY: Receipts were over \$30,000 in the Holstein Association and the committee were quite prepared to pay 10 per cent.

THE CHAIRMAN: It does seem that this body will go ahead and say to their Executive—continue this work along with the western men, get in a body of men who can finance it and go ahead with the best work that can possibly be done.

There is an organization here, and one in the west, that has got a solid foundation, and have the finances to go ahead. If they can get together and arrive at something definite, so the National Council can be carried on and financed, I think it would be a good thing. We have to get this organization going first, then let them take the matter up.

Moved by Mr. SAUNDERS, seconded by Mr. H. D. SMITH, That this be left with the Executive to confer with the western representatives, with power to act, and see if some final arrangement can be arrived at. Carried.

MR. H. D. SMITH: I want to suggest as the first thing I would like to see done, that some scheme of publicity be arranged to let the people of the east know of your existence. The value of any Association depends on its recognized development. The value of the Western Live Stock Union is because they let everybody know what they are doing. They send me notice of everything they do in the west. They issue a printed report to all the members in the west, of all meetings and resolutions. I do not think that five per cent. of the breeders in the east know of the existence of this Eastern Canada Live Stock Union or National Council. I think these organizations have lost a great deal of usefulness by not being known.

After the election of officers the meeting adjourned.

Ontario Poultry Association

The annual meeting of this Association was held December 6th, 1918.

OFFICERS.

President G. G. HENDERSON.
First Vice-President A. E. FIELD-MARSHALL.
Second Vice-President W. R. GRAHAM, O.A.C., Guelph.
Executive Committee G. G. HENDERSON, A. E. FIELD-MARSHALL, W. R. GRAHAM, J. H. SAUNDERS, J. S. GREENSHIELDS.
Secretary-Treasurer R. W. WADE.
Auditor G. DE W. GREENE.

DIRECTORS.

J. S. GREENSHIELDS, Toronto.	A. E. FIELD-MARSHALL, Beamsville.
A. W. TYSON, Guelph.	G. G. HENDERSON, Hamilton.
RICHARD OKE, London.	WALTER ROSE, Teeswater.
WM. MCNEIL, London.	J. W. CLARK, Cainsville.
J. H. SAUNDERS, London.	W. W. SIMPSON, Guelph.
JOS. RUSSELL, Toronto.	PROF. W. R. GRAHAM, O.A.C., Guelph.
J. A. NORTHEY, Toronto.	

REPRESENTATIVES TO FAIR BOARDS.

Ontario Provincial Winter Fair: WM. MCNEIL, J. H. SAUNDERS, A. W. TYSON, W. W. SIMPSON.
Canadian National Exhibition: WM. MCNEIL.
Eastern Canada Live Stock Union: WM. MCNEIL.
Delegates to National Show: H. B. DONOVAN, R. H. ESSEX, W. R. GRAHAM, G. G. HENDERSON.
Western Fair, London: J. H. SAUNDERS, H. R. K. TOZER.
Central Canada Exhibition: G. G. HENDERSON, ROBT. ESSEX.

FINANCIAL STATEMENT.

For the year ending November 30th, 1918.

Receipts.

Cash on hand as per last report	\$9 53	
Membership fees, 1917	145 00	
Membership fees, 1918	542 00	
	<hr/>	
Total		\$696 53

Expenditures.

Directors' expenses	\$132 50	
Printing	4 00	
Cash on hand	560 03	
	<hr/>	
Total		\$696 53

Appendix B
TO
ANNUAL REPORT
OF THE
LIVE STOCK BRANCH
1917

Members of Live Stock, Poultry and
Seed Growers' Associations

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:
Printed by A. T. WILGRESS, Printer to the King's Most Excellent Majesty
1918

Ontario Provincial Winter Fair

POULTRY EXHIBITORS

BRAHMA, LIGHT.

Cockburn & Son, Dundas.
A. E. Field-Marshall, Beamsville.
Joe. Walker, Wardsville.
Ralph Williams, M.D., Ingersoll.
Curtis Bros., Norham.

D. A. Radcliffe, Toronto.
Chas. Gould, Glencoe.
Albert Edwards, Beamsville.
Webster & Hurley, Glencoe.

BRAHMA, DARK.

C. A. R. Tilt, Doon.
Robt. Hauser, Canboro.
Curtis Bros., Norham.
Geo. H. Vaughan, London.

J. H. Warrington, Cornwall.
Chas. Gould, Glencoe.
Webster & Hurley, Glencoe.

COCHIN, BUFF.

A. E. Field-Marshall, St. Catharines.

Robt. Hauser, Canboro.

COCHIN, PARTRIDGE.

J. Handely, Galt.
C. A. R. Tilt, Doon.

Richard Oke, London.

COCHIN, BLACK.

Duncan Butler, Strathroy.
C. A. R. Tilt, Doon.

A. J. George, London.
Robt. Hauser, Canboro.

COCHIN, WHITE.

J. O. Reed, Sarnia.
Duncan Butler, Strathroy.

G. Anguish, Lambeth.
J. H. Warrington, Cornwall.

LANGSHAN, BLACK.

Holland Bros., Kingston.
Anderson Bros., Oakville.
C. A. R. Tilt, Doon.
B. Stinchcombe & Son, Middlemarch.

Arden Bradley, Aylmer.
Cockburn & Son, Dundas.
E. O. Penwarden, St. Thomas.

LANGSHAN, WHITE.

A. G. H. Luxton & Sons, Mt. Forest.
B. Stinchcombe & Son, Middlemarch.

L. Ridler, Guelph.

PLYMOUTH ROCK, BARRED.

Hy. Hulse, Newmarket.
F. J. French, Newmarket.
J. A. Betzner, Aldershot.
Jno. A. Lambertus, Eganville.
Jno. Fenn, Plattsville.
Stewart Bruce, Burlington.
John Pringle, London.
Jno. R. Kerr, Milverton.
H. A. Bald, St. Catharines.
C. C. Hinds, Barrie.
Maple Leaf Poultry Yards, Milverton.
W. J. Spencer, Milverton.
Jno. A. Nash, London.
G. Morton & Son, Glanford Sta.
Long & Bisley Farm, Hamilton.
I. W. Norris, Guelph.

W. H. Hunter, Orangeville.
Robt. Cameron, St. Catharines.
Robt. T. Heath, Guelph.
W. T. Healey, Guelph.
A. F. Hockin, London.
Jas. M. McCormack, Rockton.
John C. Evans, Guelph.
Geo. Bawden, Lucan.
Hugh Short, Todmorden.
W. F. Brown, London.
David Ross, Jr., Watford.
L. C. Spofford, Paisley.
Anderson Bros., Oakville.
Shuttleworth Bros., Leamington.
Archie Beckett, Smith's Falls.
L. Ridler, Guelph.

PLYMOUTH ROCK, WHITE.

McConnell & Ferguson, London.
L. A. Hay, London.
J. Cook, Drumbo.
Rymal W. Smith, Dunnville.
D. Douglas & Sons, Mitchell.
Fred A. Andrews, London.
Caspar Ostler, Hamilton.

J. W. McLeish, London.
A. Widner, Simcoe.
Douglas E. Wark, Picton.
L. M. Smith, Guelph.
Jas. Thos. Grieve, Dorchester Sta., R.R. 2.
Pte. H. T. Endersby, Toronto.

PLYMOUTH ROCK, BUFF.

Peter Gould, Guelph.
 Wm. Moore, London.
 Hirchenrader Bros., Kitchener.
 Cockburn & Son, Dundas.

H. A. Bald, St. Catharines.
 D. L. Brisson, Staples.
 Shuttleworth Bros., Leamington.

PLYMOUTH ROCK, PARTRIDGE.

Buffin Forster, Hanover.
 Arthur S. Whiles, Parkhill.
 J. H. Karn, Guelph.
 W. W. Ashley, Saskatoon, Sask.

Smith Bros., London.
 Shuttleworth Bros., Leamington.
 W. J. Pelz, Preston.

PLYMOUTH ROCK, COLUMBIAN.

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 Jno. P. Nickason, Guelph.

J. H. Karn, Guelph.
 Jas. C. Kerr, Milverton.

WYANDOTTE, GOLDEN.

Robt. Patterson, Guelph.
 A. Flawn, London.
 W. J. Bridge, Guelph.
 N. Washburn, Almonte.
 George Bawden, Lucan.
 Jas. H. Blackie, Toronto.

S. H. Lumb, Toronto.
 M. E. Lymburner, Goderich.
 Robt. A. Howe, Toronto.
 R. C. Erwin, Waterford.
 T. Hubbard, Galt.

WYANDOTTE, SILVER.

Thos. Lumb, Hespeler.
 H. Barlow, Montreal, Que.
 Beamer Bros., Ridgeville.
 Chas. Hamilton, Toronto.
 Robt. Patterson, Guelph.
 Wm. F. Garland, Ottawa.
 Burt M. Wees, Sarnia.
 A. Flawn, London.

Wilber Lemon, Lynden.
 N. Washburn, Almonte.
 Cockburn & Son, Dundas.
 F. Thom, Hamilton.
 S. H. Lumb, Toronto.
 W. J. Teal, Guelph.
 R. C. Erwin, Waterford.
 W. J. Bridge, Guelph.

WYANDOTTE, BLACK.

Chris. Grimoldby, Owen Sound.
 Beamer Bros., Ridgeville.
 A. Flawn, London.
 Hirchenrader Bros., Kitchener.
 H. L. McKenney, Aylmer (West).
 Brooks Bros., London.

J. H. Warrington, Cornwall.
 J. B. Woodhall, Thedford.
 John H. Brooks, London.
 W. D. Swackhammer, Aylmer.
 C. F. Rice, Bowmanville.

WYANDOTTE, BUFF.

Beamer Bros., Ridgeville.
 Hirchenrader Bros., Kitchener.
 Alf. Flawn, London.
 Hamlyn & Srigley, Toronto.

W. J. Baird, Ottawa West.
 Arnold Smith, Kitchener.
 John H. Brooks, London.

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 Frank E. Weist, Aurora.

A. H. Stokes, London.
 Curtis Bros., Norham.
 Robt. Hauser, Canboro.

WYANDOTTE, WHITE.

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 Jno. R. Henderson, Sarnia.
 Burt M. Wees, Sarnia.
 Gallipeau Bros., Smith's Falls.
 W. B. Powell, Galt.
 D. A. Hopper, Waterdown.
 Chas. Massie, Port Hope.
 R. Trivett, Newmarket.
 Harvey L. Johnson, Simcoe.
 I. D. Atkin, Milverton.
 E. P. Connors, Ottawa.
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 Dr. W. A. Kelly, Florence.
 McCaffrey & Yawman, Newmarket.
 C. E. Henning, Hanover.
 Orem Torrence, Toronto.
 J. A. Gillett, Aylmer.
 Jas. P. White, Eden Mills.
 Jos. Russell, Toronto.

PARTRIDGE, WYANDOTTE.

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S. Rundle, Guelph.
Brooks Bros., London.
S. Occomore, Guelph.

Douglas E. Wark, Picton.
Geo. Bawden, Lucan.
John H. Brooks, London.
J. H. Karn, Guelph.

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Robt. Patterson, Guelph.
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A. T. Rees, Hamilton.
R. E. Middlemiss, Brantford.

G. F. Wadsworth, Ottawa.
Elliott Bros., Peterboro.
Fred M. Wagner, Guelph.
Chas. O. Planz, Waterloo.
Mrs. S. A. Roberts, London.

JAVA, BLACK.

A. G. H. Luxton & Sons, Mt. Forest.
C. A. R. Tilt, Doon.
Fred Bell, Seaforth.
J. H. Warrington, Cornwall.

W. E. Robinson, London.
Duncan Butler, Strathroy.
L. Ridler, Guelph.

JAVA, MOTTLED.

Richard Oke, London.

W. E. Robinson, London.

RHODE ISLAND REDS, S. C.

Lennox Red Yards, Napanee.
I. W. Norris, Guelph.
Jno. Pringle, London.
H. W. Pringle, Napanee.
Thos. Simpson, Guelph.
Thos. J. Jones, Guelph.
Martin Mikel, Kitchener.
A. McKee, Sandwich.
R. E. Smith, Toronto.
Jos. Russell, Toronto.
Long & Bisley Farm, Hamilton.
R. B. Beamish, London.
O. L. Wright, Richmond Hill.

F. M. Pugh, Claremont.
E. M. Dutton, Newfane, N.Y.
W. T. Heeley, Guelph.
Gus Murray, Guelph.
Cockburn & Son, Dundas.
Brown & Eckert, Stratford.
Dr. R. J. Vance, Waterdown.
G. C. Cook, Toronto.
Shuttleworth Bros., Leamington.
Clancy M. Buell, Brockville.
F. M. Johnston, Toronto.
Hilliard & Allan, Guelph.

RHODE ISLAND REDS, R. C.

Lennox Red Yards, Napanee.
Miss C. Collinson, Scotia Jct.
O. L. Wright, Richmond Hill.
C. Munson, Port Severn.
Jno. Scott, Port Arthur.
E. H. Stork, St. Catharines.
Jos. Russell, Toronto.
R. B. Beamish, London.
Geo. L. Baker, Windsor.
Dr. W. H. Reid, St. George.

Stanley C. Bliss, Fort William.
E. M. Dutton, Newfane, N.Y.
Philip Mason, North Bay.
Jas. A. Northey, Toronto.
Brown & Eckert, Stratford.
G. A. Lucas, Lindsay.
W. J. Teale, Guelph.
W. A. Chant & Son, Toronto.
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H. L. McKenney, Aylmer (West).
Galloway & English, Ingersoll.
Ratz Bros., Tavistock.

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L. Neddo, Brockville.
Robt. Hauser, Canboro.
A. G. H. Luxton, Mt. Forest.

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Richard Sutton, Fort William.
Walter Rose, Teeswater.
Thos. Hall, Sulphide.
T. J. Rooney, Paris.
A. W. Pigott, Sulphide.
Samuel Gould, Toronto.
Frank Farrow, Mt. Brydges.
A. A. Margrett, N. Toronto.
H. H. Hawley, Guelph.
W. G. Sinclair, Florence.
J. R. Stork, St. Catharines.
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Roswell E. Collins, Guelph.

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G. Link, Guelph.
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R. Brown, Galt.
Thos. McDonald, Paris.
W. J. Howard, Paris.
L. C. Spofford, Paisley.
Thos. Wardell, Woodstock.
C. W. Hodge, Florence.
J. C. Brown, Collingwood.

J. R. Laidlaw, Paisley.
Douglas Todd, Hamilton.
Alex. McKee, Sandwich.
A. Foster, Birchcliffe.
L. Ridler, Guelph.

J. J. Powers, Ottawa.
L. A. Brill, London.
Jos. Telfer, Milton West.
J. J. Powers, Ottawa.

LEGHORNS, BLACK.

A. E. Doan, Thedford.
Peter Banford, Montreal, Que.
James Maguire, Kingston.
L. Ridler, Guelph.
Wm. H. Reid, Waterdown.
Philip Mason, North Bay.

Jno. H. Sleeman, Guelph.
Meldrum & Williams, Hamilton.
Ed. Howard, London.
C. A. R. Tilt, Doon.
Henderson & Billings, St. Mary's.

LEGHORN, R. C., BROWN.

Thos. Edgar, Brantford.
C. E. Henning, Hanover.

R. H. Pond, Woodstock.
Wm. Cadman, Ostrander.

LEGHORN, S. C., BROWN.

Rev. J. G. Taylor, Chatham.
D. Ross, Jr., Watford.
C. E. Henning, Hanover.
A. J. Engel, Waterloo.
H. F. Becker, Waterloo.

Wm. S. Thompson, Ingersoll.
E. G. Ferris, Ford City.
E. J. Wright & Sons, Strathroy.
J. J. Green, Waterdown.

LEGHORN, BUFF.

E. Jeffries, Toronto.
Jas. C. Andrews, London.
Jas. A. Gay, London.
James Maguire, Kingston.
J. R. Stork, St. Catharines.
Thos. Malleck, Kitchener.
Hirchenrader Bros., Kitchener.
H. H. Hawley, Guelph.
H. Bickle, Toronto.

P. G. Denike, Belleville.
John Herman, Galt.
John W. Russell, W. Ft. William.
L. L. Leach & Son, Orillia.
Jno. J. Ranson, Woodstock.
Henderson & Billings, St. Mary's.
R. H. Dilling, Bowmanville.
L. Ridler, Guelph.
F. M. Douglas, Niagara Falls.

LEGHORN, SILVER.

D. W. Rehder, London.
H. L. McKenney, Aylmer (West).
R. M. Berry, London.
Wm. Smith, Hamilton.

Ratz Bros., Tavistock.
Robt. Houser, Canboro.
Henderson & Billings, St. Mary's.

BUTTERCUPS, SICILIAN.

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W. A. Purdy, London.
Richard Williams, Kitchener.
E. E. Horn, London.

F. Jarrett, Mt. Hamilton.
Ratz Bros., Tavistock.
G. H. Schumacher, Mt. Hamilton.

SPANISH.

Geo. J. White, Hamilton.
David Bogue, Byron.

C. F. Rice, Bowmanville.
Walter Christmas, Montreal.

MINORCA, S. C., BLACK.

Robt. E. Skirrow, Todmorden.
Wm. Nickell, Sarnia.
Jas. Anderson, Toronto.
Chas. Gorvett, Sparta.
R. J. Teskey, St. Mary's.
G. C. Cook, Toronto.
N. G. Schafer, Milverton.
John Stephen, Toronto.
J. Wilson, Guelph.
Peter Neumeister, Milverton.

Edgar W. Hayden, Cobourg.
Brown & Eckert, Stratford.
S. Stapleford, Watford.
Geo. Young, London.
Fred D. King & Son, Aylmer.
F. A. Harlow, Toronto.
S. P. Hirschberger, Kitchener.
C. C. Jenkins, Meaford.
J. J. Green, Waterdown.

MINORCA, R. C., BLACK.

Adam Glenn, Glanworth.
Wm. Nickell, Sarnia.
Martin Schiel, Waterloo.
E. Asbury, Fonthill.
C. W. P. Brock, Waterford.

Geo. Young, London.
A. B. McBride, Waterloo.
Wm. Ellis, Prescott.
A. G. H. Luxton, Mt. Forest.
C. C. Jenkins, Meaford.

MINORCA, WHITE.

E. A. Bock, London.
Jas. M. McCormack, Rockton.

A. G. H. Luxton, Mt. Forest.

BLUE ANDALUSIANS.

John Bolen, Guelph.
H. L. Walley, Schomberg.
C. A. R. Tilt, Doon.
L. Ridler, Guelph.
C. D. Worthington, Galt.
W. J. Colwill, Port Hope.
E. E. McCombs, Fenwick.
W. E. Pakenham, Norwood.
F. W. Turp, Toronto.

Frank Ashmore, Hamilton.
Frank Webster, Guelph.
A. A. Casselman, Winchester.
F. H. Brown & Son, Port Hope.
Norman Murray, Campbellville.
John MacCourtie, Winchester.
Howard & Groom, Toronto.
A. F. Casselman, Winchester.
L. A. Brill, London.

ANCONAS, S. C.

O. G. Gies, Bridgeport.
Amos Hilker, Kitchener.
Arthur Rodger, London.
Frank Ashmore, Hamilton.
E. O. Penwarden, St. Thomas.
Geo. W. Elsbrie, Hamilton.
D. F. Thomson, St. Mary's.
Allan Reid, Hamilton.
Beamer Bros., Ridgeville.

John Shields, Hamilton.
H. L. Smith, Mt. Hamilton.
Alfred Ingham, Toronto.
Ratz Bros., Tavistock.
E. E. McCombs, Fenwick.
E. W. Leduc, London.
L. Ridler, Guelph.
L. Robertson, Stratford.

ANCONAS, R. C.

John Hahn, Tavistock.
A. C. Apps, Brantford.
I. Vander, London.

H. L. Smith, Mt. Hamilton.
Ratz Bros., Tavistock.

DORKING, SILVER GREY.

D. Ross, Jr., Watford.
G. A. Burns, Paris.

W. J. Furminger, St. Catharines.
Henry Sharp & Son, Lynden.

DORKING, COLORED.

G. & J. Bogue, Strathroy.
W. J. Furminger, St. Catharines.
Wm. Carter, Londesboro.
Arthur S. Taber, Scarboro Jct.

David Bogue, Byron.
Jas. M. McCormack, Rockton.
Douglas E. Wark, Picton.

DORKING, WHITE.

A. E. Doan, Thedford.
G. & J. Bogue, Strathroy.
David Bogue, Byron.
W. J. Furminger, St. Catharines.

J. H. Warrington, Cornwall.
Douglas E. Wark, Picton.
Duncan Butler, Strathroy.

ORPINGTON, BUFF.

A Bedford, Montreal, Que.
A. E. Field-Marshall, Beamsville.
H. J. Colwill, Arthur.
A. R. McRitchie, Arthur.
Geo. H. McClelland, Peterboro.
Thompson Bros., Port Dover.
Geo. Hawkins, Tavistock.
P. E. Aird, Montreal, Que.

Jno. Stewart, Hamilton.
W. D. Smith, Toronto.
Edgar W. Hayden, Cobourg.
Elliott Bros., Peterboro.
H. Bickle, Toronto.
Douglas E. Wark, Picton.
J. W. Duncan, London.
H. Norton, Glen Williams.

ORPINGTON, BLACK.

W. A. Staebler, Gananoque.
H. F. Vidal, Beamsville.
Wm. Doerr, Stratford.
Fowler & Wright, N. Toronto.
Geo. A. Jameson, Granton.
Frank E. Weist, Aurora.
R. E. Hodgins, Parkhill.

H. T. Whetter, Toronto.
David A. Christie, Hamilton.
Wm. Smith, London.
Carpenter & Johnson, Toronto.
W. Hearne, Toronto.
J. A. Lee, W. Toronto.

ORPINGTONS, WHITE.

Fred Stevens, Beamsville.
Thompson Bros., Port Dover.
C. Schelter, Fonthill.
W. R. Stephens, Newmarket.
Jas. W. Shields, Hamilton.
D. McIntyre, Georgetown.

A. H. Westman, Granton.
V. E. Pattison, Shallow Lake.
Robt. Christie, Mt. Hamilton.
W. J. Roberts, Hamilton.
J. S. Greenshields, Toronto.
L. E. Lymburner, Goderich.

ORPINGTONS, BLUE.

W. A. Staebler, Gananoque.
Chas. Massie, Port Hope.
Richard Oke, London.
F. H. Brown & Son, Port Hope.
A. J. George, London.

Meldrum & Williams, Hamilton.
Geo. Wm. Johnson, Hamilton.
L. Fortune, Hamilton.
W. Dawson, Brampton.
Jas. Stewart, St. Thomas.

ORPINGTON, R. C.

John Shields, Hamilton.

SUSSEX, SPECKLED.

R. E. Bruton & Son, Hamilton.
L. E. McGugan, London.
H. Reigate & F. Warden, Mount Dennis.

W. R. Ingle, Stratford.
J. Young, London.

SUSSEX, A. O. V.

Harry Backus, Chatham.
C. K. Carrington & J. Eaton, Ft. William.
A. R. McRitchie, Arthur.
H. A. Bald, St. Catharines.
Fred Newman, Waterford.

L. E. McGugan, London.
Mrs. S. A. Roberts, London.
A. G. H. Luxton, Mt. Forest.
G. G. Henderson, Hamilton.

CORNISH, DARK.

Cockburn & Son, Dundas.
F. H. W. Hickling, Flesherton.
Matt. Hossford, Guelph.
C. E. Henning, Hanover.
J. Handley, Galt.
Scanlon Bros., Elora.
D. P. Woodruff, Magrath, Alta.
J. A. Thurston, Vancouver, B.C.
John Lock, Victoria, B.C.

W. H. Grose, St. Thomas.
Douglas E. Wark, Picton.
H. G. Whiting, London Jct.
M. B. Cosby, Smithville.
Geo. McQuaigue, Toronto.
R. Allister, London.
Leonard F. Tyrrell, Mt. Hamilton.
S. P. Hinschberger, Kitchener.

CORNISH, A. O. V.

Jos. Marshall, Hamilton.
D. P. Woodruff, Magrath, Alta.
R. E. Hodgins, Parkhill.

Jas. Thos. Grieve, Dorchester Sta.
H. G. Whiting, London Jct.

RED CAP.

A. G. H. Luxton, Mt. Forest.
J. H. Warrington, Cornwall.

Mrs. S. A. Roberts, London.
Robt. Hauser, Canboro.

HOUDAN.

Jim Crack Poultry Farm, Valentia.
G. & J. Bogue, Strathroy.
F. W. Angus, Wingham.

Dr. L. L. Haut, Georgetown.
Victor Campbell, Mt. Hamilton.

CREVE COEUR.

Duncan Butler, Strathroy.

G. & J. Bogue, Strathroy.

LA FLECHE.

W. M. Smith, Scotland.
Duncan Butler, Strathroy.
Richard Oke, London.

J. H. Warrington, Cornwall.
G. & J. Bogue, Strathroy.

POLAND W. C. B.

Duncan Butler, Strathroy.
Robt. C. Middlemiss, Brantford.
David Bogue, Byron.
H. L. McKenney, Aylmer (West).

Arden Bradley, Aylmer.
Douglas E. Wark, Picton.
G. & J. Bogue, Strathroy.

POLANDS, GOLDEN, N.B.

G. & J. Bogue, Strathroy.

POLANDS, SILVER, N. B.

C. F. Coleman, Burlington.
Duncan Butler, Strathroy.G. & J. Bogue, Strathroy.
J. H. Warrington, Cornwall.

POLANDS, WHITE, N. B.

Duncan Butler, Strathroy.
G. & J. Bogue, Strathroy.J. H. Warrington, Cornwall.
Douglas E. Wark, Picton.

POLANDS, GOLDEN BEARDED.

Duncan Butler, Strathroy.
G. & J. Bogue, Strathroy.J. H. Warrington, Cornwall.
Douglas E. Wark, Picton.

POLANDS, SILVER BEARDED.

G. & J. Bogue, Strathroy.
G. Anguish, Lambeth.J. H. Warrington, Cornwall.
Douglas E. Wark, Picton.

POLANDS, WHITE BEARDED.

Duncan Butler, Strathroy.
G. & J. Bogue, Strathroy.J. H. Warrington, Cornwall.
A. F. Casselman, Winchester.

POLAND, BUFF LACED.

Duncan Butler, Strathroy.

G. & J. Bogue, Strathroy.

HAMBURG, GOLDEN SPANGLED.

Wm. Carter, Londesboro.
Richard Oke, London.Curtis Bros., Norham.
J. H. Warrington, Cornwall.

HAMBURG, SILVER SPANGLED.

G. & J. Bogue, Strathroy.
Wm. Carter, Londesboro.
Richard Oke, London.
Curtis Bros., Norham.
W. J. Furminger, St. Catharines.
J. A. Dukes, Hamilton.J. Young, London.
Douglas E. Wark, Picton.
Arthur Rodger, London.
W. Heron, Toronto.
L. A. Brill, London.

HAMBURG, GOLDEN PENCILLED.

Duncan Butler, Strathroy.
G. & J. Bogue, Strathroy.Richard Oke, London.
G. Anguish, Lambeth.

HAMBURG, SILVER PENCILLED.

Duncan Butler, Strathroy.
G. & J. Bogue, Strathroy.Richard Oke, London.
G. Anguish, Lambeth.

HAMBURG, BLACK.

S. G. McKay, Goderich.
G. & J. Bogue, Strathroy.
Richard Oke, London.
L. Austin Brill, London.
Curtis Bros., Norham.
Wm. Carter, Londesboro.R. L. Wheadon, Hamilton.
Geo. Burgess, London.
Thompson Bros., Hamilton.
Harry Himes, Galt.
C. A. R. Tilt, Doon.
L. Ridler, Guelph.

SULTAN.

W. G. Murray, Strathroy.

SILKIES.

A. Bentley, London.
Fred A. Elliott, St. Catharines.
E. E. McCombs, Fenwick.L. Austin Brill, London.
W. J. Slessor, London.

CAMPINE, GOLDEN.

G. E. Snutch, Galt.
H. J. Colwill, Arthur.

Geo. Frame, Stratford.

CAMPINE, SILVER.

Jim Crack Poultry Farm, Valentia.
W. J. Gillespie, Guelph.
Stanley Hendren, Norwood.
L. Austin Brill, London.
Clark Bros., London.
H. L. Walley, Schomberg.
W. T. Heeley, Guelph.
Allan Reid, Hamilton.

G. P. Cooper, Galt.
Jake Lang, Beamsville.
A. J. Packman, Ottawa.
D. Sidney Kerr, Milverton.
Shuttleworth Bros., Leamington.
W. J. Mitchell, Galt.
Lewis W. Gishler, Tavistock.
L. P. Cottingham, Tilbury.

A. O. V. FOWL.

Frank Ashmore, Hamilton.

F. Barron, Paris.

GAME, B. B. RED.

W. Barber, Toronto.
J. H. Roberts, St. Thomas.
Morley Bros., Milton.

Jas. Morley, Milton.
S. Stapleford, Watford.

GAME, BROWN RED.

W. Barber, Toronto.

W. J. Furminger, St. Catharines.

GAME, DUCKWING.

W. G. Murray, Strathroy.
W. Barber, Toronto.

Joseph Telfer, Milton West.
W. J. Furminger, St. Catharines.

GAMES, RED PYLE.

W. Barber, Toronto.
Joseph Telfer, Milton West.

W. H. Brouse, Oakville.

GAME, BIRCHEN.

W. Barber, Toronto.

W. J. Furminger, St. Catharines.

GAMES, SUMATRA BLACK.

A. R. K. Tozer, London.
A. Trivett, Newmarket.

J. H. Warrington, Cornwall.
A. G. H. Luxton, Mt. Forest.

GAMES, OLD ENGLISH, BLACK RED.

Rod McKenzie, Guelph.
R. H. Barber, Guelph.
L. Ridler, Guelph.
Thos. Bickle, Woodstock.

James A. White, Galt.
F. W. Angus, Wingham.
Archie Wood, St. Catharines.

GAMES, OLD ENGLISH, A. O. C.

Rod McKenzie, Guelph.
Wm. Carter, Londesboro.
R. H. Barber, Guelph.
L. Ridler, Guelph.
Wm. Drohan, Guelph.

Thos. Bickle, Woodstock.
James A. White, Galt.
F. W. Angus, Wingham.
Archie Wood, St. Catharines.

TURKEYS, BRONZE, 2 YEARS AND UP.

Geo. Neil, Tara.
W. H. Beattie, Wilton Grove.

Henry Sharpe & Son, Lynden.

TURKEYS, BRONZE, UNDER 2 YEARS.

W. H. Beattie, Wilton Grove.
Jos. Telfer, Milton West.

Henry Sharpe & Son, Lynden.
Les. Ridler, Guelph.

Henry Sharpe & Son, Lynden.
John Bros., Son, Mitchell.
Angus & Son, Elora.
Mrs. Lord, Campbello.
Dunnville.

TURKEYS, WHITE, HOLLAND.

Mrs. A. Ayre, Bowmanville.
Joseph Telfer, Milton West.
Jas. M. McCormack, Rockton.

E. S. Baker, Guelph.
Henry Sharpe & Son, Lynden.

TURKEYS, A. O. V.

A. G. H. Luxton & Sons, Mt. Forest.
Mrs. A. Ayre, Bowmanville.

Joseph Telfer, Milton West.
Thos. J. McCormack, Rockton.

GEESE, TOULOUSE.

Cockburn & Son, Dundas.
Scanlon Bros., Elora.
D. Douglas & Son, Mitchell.
Menno Shantz, Ayr.

Jas. McCormack, Rockton.
Thos. M. Shea & Son, Fergus.
Alf. C. Crane, Guelph.
Shuttleworth Bros., Leamington.

GEESE, EMBDEN.

Cockburn & Son, Dundas.
Scanlon Bros., Elora.
Alf. C. Crane, Guelph.
C. A. R. Tilt, Doon.
Menno Shantz, Ayr.

E. S. Baker, Guelph.
H. Hulse, Newmarket.
Jos. Telfer, Milton West.
Wm. Pearson, Guelph.

GEESE, BROWN CHINESE.

A. G. H. Luxton & Sons, Mt. Forest.
Menno Shantz, Ayr.
E. S. Baker, Guelph.

Joseph Walker, Wardsville.
L. M. McIntyre, Norwich.
Les. Ridler, Guelph.

GEESE, WHITE CHINESE.

A. G. H. Luxton & Sons, Mt. Forest.
L. McIntyre, Norwich.
Menno Shantz, Ayr.
Wm. Carter, Londesboro.

E. S. Baker, Guelph.
Jos. Telfer, Milton West.
Robert Houser, Canboro.

GEESE, AFRICAN.

C. A. R. Tilt, Doon.
L. McIntyre, Norwich.
Menno Shantz, Ayr.

E. S. Baker, Guelph.
Thos. M. Shea & Son, Fergus.
Jos. Telfer, Milton West.

GEESE, A. O. V.

A. G. H. Luxton & Sons, Mt. Forest.
Wm. Carter, Londesboro.
A. E. Doan, Thedford.

W. J. Teale, Guelph.
Shuttleworth Bros., Leamington.
Wm. Pearson, Guelph.

DUCKS, AYLESBURY.

A. G. H. Luxton & Sons, Mt. Forest.

G. & J. Bogue, Strathroy.

DUCKS, ROUEN.

Newmarket.
Dundas.

E. Deadman, London.
Neil Gillies & Sons, Milton West.
Menno Shantz, Ayr.

DUCKS, DEKIN.

Alf. C. Crane, Guelph.
W. J. Colwill, Port Hope.
Shuttleworth Bros., Leamington.
C. A. R. Tilt, Doon.

DUCKS, GREY, WHITE.

Cockburn & Son, Dundas.
Anderson Bros., Oakville.
Menno Shantz, Ayr.
C. A. R. Tilt, Doon.

DUCKS, RUNNER, FAWN AND WHITE.

C. A. R. Tilt, Doon.	A. E. Doan, Thedford.
E. E. McCombs, Fenwick.	Shuttleworth Bros., Leamington.
W. J. Furminger, St. Catharines.	Neil Gillies & Sons, Milton West.
R. A. Buttrum, Hamilton.	Les. Ridler, Guelph.
Robt. T. Heath, Guelph.	

DUCKS, CAYUGA.

A. G. H. Luxton & Sons, Mt. Forest.	W. W. Lord, Campbellcroft.
C. A. R. Tilt, Doon.	Cockburn & Son, Dundas.
Menno Shantz, Ayr.	Mercy Baptie, Peterboro.
E. S. Baker, Guelph.	Shuttleworth Bros., Leamington.
Wm. J. Marriott, Hespeler.	Les. Ridler, Guelph.
Wm. Drohan, Guelph.	

DUCKS, MUSCOVY.

J. J. McCormick, Paris.	E. S. Baker, Guelph.
Raines & Bannister, Brantford.	W. W. Lord, Campbellcroft.
A. G. H. Luxton & Sons, Mt. Forest.	L. M. McIntyre, Norwich.
Menno Shantz, Ayr.	

DUCKS, MALLARD.

Adam Glenn, Glanworth.	Menno Shantz, Ayr.
A. E. Doan, Thedford.	Shuttleworth Bros., Leamington.
L. McIntyre, Norwich.	

DUCKS, A. O. V.

D. T. Rogers, Dunnville.	Richard Oke, London.
A. G. H. Luxton & Sons, Mt. Forest.	Jas. McCormack, Rockton.
E. E. McCombs, Fenwick.	Adam Glenn, Glanworth.
W. J. Furminger, St. Catharines.	

LAYING PENS.

A. R. McRitchie, Arthur.	A. W. Pigott, Sulphide.
R. E. Bruton & Son, Hamilton.	R. Storrer, Toronto.
E. W. Brocklebank, Arthur.	Conestoga Egg Farm, Arthur.
J. A. Gillett, Aylmer.	J. R. Stork, St. Catharines.
Harold Sutton, Guelph.	Norfolk Specialty Farms, Glen Williams.

EXHIBITION PENS.

LEGHORNS, S. C. WHITE.

Conestoga Egg Farm, Arthur.	Walter Rose, Teeswater.
W. J. Howard, Paris.	J. R. Laidlaw, Paisley.
W. T. Ferguson, Smith's Falls.	E. H. Slater, Waterdown.

PLYMOUTH ROCK, BARRED.

H. Hulse, Newmarket.	J. A. Betzner, Aldershot.
Conestoga Egg Farm, Arthur.	John Pringle, London.
J. A. Lambertus, Eganville.	Maple Leaf Poultry Yards, Milverton.
F. J. French, Newmarket.	W. J. Colwill, Port Hope.
Edgar W. Hayden, Cobourg.	

WYANDOTTE, WHITE.

Conestoga Egg Farm, Arthur.	I. D. Atkin, Milverton.
Hon. W. C. Sutherland, Saskatoon, Sask.	Chas. Massie, Port Hope.
A. Mallon & Son, Guelph.	

RHODE ISLAND REDS, S. C.

Conestoga Egg Farm, Arthur.	R. J. Vance, Waterdown.
Thos. Simpson, Guelph.	Jos. Russell, Toronto.
John Pringle, London.	

ORPINGTON, BUFF.

A. R. McRitchie, Arthur.	M. E. Lymburner, Goderich.
Thompson Bros., Port Dover.	John Stewart, Hamilton.

MINORCA, S. C., BLACK.

Robt. E. Skirrow, Todmorden.
N. G. Shafer, Milverton.

G. C. Cook, Toronto.
F. A. Harlaw, Toronto.

PLYMOUTH ROCK, WHITE.

L. A. Hay, London.
McConnell & Ferguson, London.

I. Anderson, Hamilton.
F. A. Andrews, London.

A. O. V.

Miss C. Collinson, Scotia.
W. Lemon, Lynden.
F. Warden & H. Reigate, Mount Dennis.
E. A. Bock, London.
F. W. Angus, Wingham.
Cockburn & Son, Dundas.
Matt. Hosford, Guelph.

Chas. Massie, Port Hope.
M. E. Lymburner, Goderich.
W. J. Colwill, Port Hope.
E. H. Slater, Waterdown.
A. G. H. Luxton, Mt. Forest.
Glenview Poultry Yards, Niagara Falls.
R. H. Dilling, Bowmanville.

SEED EXHIBITORS

FALL WHEAT.

G. A. Burns, Paris.
C. W. P. Brock, Waterford.
Andrew Schmidt, Mildmay.

E. M. Readhead, Milton, R.R. No. 2.
Beamer Bros., Ridgeville.
Geo. W. Glover, Nottawa.

SPRING WHEAT (EXCEPT GOOSE).

S. W. Bingham, Hillsburg, R.R. No. 2.
Jno. T. Rettinger, Formosa.
Will C. Barrie, Galt, R.R. No. 7.

Knox Bros., Wroxeter, R.R. No. 2.
Fletcher Buckland, Wiarton, No. 2.
Andrew Schmidt, Mildmay, R.R. No. 1.

GOOSE WHEAT.

R. M. Mortimer, Honeywood.

Will E. W. Steen, Streetsville.

OATS (BANNER).

Geo. Erwin, Simcoe, R.R. No. 4.
S. W. Bingham, Hillsburg, R.R. No. 2.
Jas. A. Dixon, Varney, R.R. No. 1.
Jas. M. McCormack, Rockton.
Jas. H. Wilson, Milton, R.R. No. 4.
A. Elcoat, Seaforth.

G. A. Burns, Paris.
Knox Bros., Wroxeter, R.R. No. 2.
Jno. T. Rettinger, Formosa.
Jacob Lerch, Preston, R.R. No. 2.
Andrew Schmidt, Mildmay, R.R. No. 1.
Geo. W. Glover, Nottawa.

OATS (O.A.C. No. 72).

R. Wilkin, Palmerston, R.R. No. 3.
W. W. Lord, Campbellcroft.
S. M. Pearce, Fingal.
Jno. T. Rettinger, Formosa, R.R. No. 2.
Jacob Lerch, Preston, R.R. No. 2.
H. L. Goltz, Bardsville.
Jas. D. Steen, Meadowvale.
Wm. Murdock, Palmerston.
Andrew Schmidt, Mildmay, R.R. No. 1.
Jno. Winer, Guelph, R.R. No. 3.

Geo. Ruber, Arkell.
Ernest M. Readhead, Milton, R.R. No. 2.
Geo. E. Foster, Honeywood.
R. H. Marshall, Embro, R.R. No. 6.
B. Tolton, Guelph, R.R. No. 4.
Albert Gilbert, Simcoe, R.R. No. 2.
N. Dymont, Brantford, R.R. No. 4.
Wm. A. McCutcheon, Glencoe.
A. Elcoat, Seaforth.

OATS (O.A.C. No. 3, DAUBENY, OR ALASKA).

Geo. Ruber, Arkell.
R. R. Moore, Norwich.
Wm. Murdock, Palmerston.
A. Elcoat, Seaforth.

David J. Howell, Norval.
B. Tolton, Guelph, R.R. No. 4.
Clarence A. Wilson, Jarvis, R.R. No. 2.

OATS (ANY OTHER WHITE).

R. M. Mortimer, Honeywood.
 Ernest M. Readhead, Milton, R.R. No. 2.
 C. W. P. Brock, Waterford.
 Short Bros., Elora.
 Wm. Murdock, Palmerston.
 Andrew Schmidt, Mildmay, R.R. No. 1.
 Jno. A. Bennett, Campbellville, R.R. No. 3.

Thos. Sellers, Zephyr.
 Robt. Erwin, Villa Nova.
 Jacob Lerch, Preston, R.R. No. 2.
 H. L. Goltz, Bardsville.
 Wm. A. McCutcheon, Glencoe.
 Jno. Winer, Guelph, R.R. No. 3.

OATS (BLACK).

Jno. T. Rettinger, Formosa, R.R. No. 1.
 Jacob Lerch, Preston, R.R. No. 2.

Jas. M. McCormack, Rockton.
 Andrew Schmidt, Mildmay, R.R. No. 1.

BARLEY (6-ROWED).

Geo. Erwin, Simcoe, R.R. No. 4.
 S. W. Bingham & Son, Hillsburg, R.R.
 No. 2.
 Thos. Sellers, Zephyr.
 Robt. Erwin, Villa Nova.
 Jacob Lerch, Preston, R.R. No. 2.
 Jas. H. Wilson, Milton, R.R. No. 4.
 Will C. Barrie, Galt, R.R. No. 7.
 Wm. A. McCutcheon, Glencoe.
 B. R. Cohoe, South Woodslee.

Clarence A. Wilson, Jarvis, R.R. No. 1.
 Will E. W. Steen, Streetsville.
 Knox Bros., Wroxeter, R.R. No. 2.
 E. M. Readhead, Milton, R.R. No. 2.
 Jno. T. Rettinger, Formosa, R.R. No. 1.
 R. R. Moore, Norwich.
 A. W. VanSickle, Onondaga.
 H. L. Goltz, Bardsville.
 Andrew Schmidt, Mildmay, R.R. No. 1.

RYE.

E. M. Readhead, Milton, R.R. No. 2.
 N. Dymont, Brantford, R.R. No. 4.

Jacob Lerch, Preston, R.R. No. 2.

BUCKWHEAT.

Jacob Lerch, Preston, R.R. No. 2.
 Jno. A. Bennett, Campbellville, R.R. No. 3.

Geo. W. Glover, Nottawa.

FIELD PEAS (LARGE).

F. Buckland, Wiarton, R.R. No. 2.

H. L. Goltz, Bardsville.

FIELD PEAS (SMALL).

S. W. Bingham & Son, Hillsburg, R.R.
 No. 2.
 Thos. Sellers, Zephyr.

Geo. W. Glover, Nottawa.
 Peter McLaren, Hillsburg.
 Wm. A. McCutcheon, Glencoe.

FIELD BEANS (SMALL WHITE).

Jacob Lerch, Preston, R.R. No. 2.
 J. E. Trothen, Wallacetown, R.R. No. 1.
 A. Gilbert, Simcoe, R.R. No. 2.

A. W. VanSickle, Onondaga.
 Will C. Barrie, Galt, R.R. No. 7.
 C. Lawton, Cookstown.

FIELD BEANS (YELLOW).

J. E. Trothen, Wallacetown, R.R. No. 1.

RED CLOVER.

Jno. Parks, Amherstburg.
 Conrad Snider, Jr., Oxdrift.
 Jno. Adams, Oxdrift.

R. Latimer, Oxdrift.
 Sylvester Richardson, Oxdrift.

ALSIKE.

Wm. Roth, Fisherville.
 R. Latimer, Oxdrift.
 Conrad Snider, Jr., Oxdrift.
 F. T. Brignall, Oxdrift.
 Geo. W. Glover, Nottawa.

T. J. Latimer, Oxdrift.
 Jno. H. Schneider, Oxdrift.
 Sylvester Richardson, Oxdrift.
 H. Wheatley, Oxdrift.

TIMOTHY.

Wm. Roth, Fisherville.

Andrew Schmidt, Mildmay, R.R. No. 1.

COMPTON'S EARLY (FLINT CORN).

Arch. Maccoll, Rodney, R.R. No. 2.
Jno. A. Bennett, Campbellville, R.R.
No. 3.

Frank Smith, Port Burwell, R.R. No. 1.

LONGFELLOW (FLINT CORN).

A. S. Maynard, Chatham, R.R. No. 3.
Arch. Maccoll, Rodney, R.R. No. 2.

D. S. Maynard, Chatham, R.R. No. 3.
R. J. Johnston, Chatham, R.R. No. 3.

SALZER'S NORTH DAKOTA (FLINT CORN).

A. S. Maynard, Chatham, R.R. No. 3.
R. J. Johnston, Chatham, R.R. No. 3.

D. S. Maynard, Chatham, R.R. No. 3.

BAILEY (DENT CORN).

Walter C. Anderson, Amherstburg, R.R.
No. 1.
D. S. Maynard, Chatham, R.R. No. 3.

Walkerside Dairy, Walkerville.
A. S. Maynard, Chatham, R.R. No. 3.
Jno. Wallace, Ruscomb.

WHITE CAP YELLOW DENT (DENT CORN).

B. R. Cohoe, South Woodslee.

Walkerside Dairy, Walkerville.

WISCONSIN No. 7 (DENT CORN).

Jno. Parks, Amherstburg.
Jno. Wallace, Ruscomb.
B. R. Cohoe, South Woodslee.

R. J. Johnston, Chatham, R.R. No. 3.
Peter McKinley, Tecumseh, R.R. No. 2.
Walkerside Dairy, Walkerville.

GOLDEN GLOW (DENT CORN).

Walkerside Dairy, Walkerville.

Jno. A. Bennett, Campbellville, R.R.
No. 3.

TABLE VARIETY (SWEET CORN).

A. S. Maynard, Chatham, R.R. No. 3.
J. E. Trothen, Wallacetown, R.R. No. 1.
W. M. Smith, Scotland.

D. S. Maynard, Chatham, R.R. No. 3.
B. R. Cohoe, South Woodslee.
Frank A. Smith, Port Burwell, R.R. No. 1.

CANNING VARIETY (SWEET CORN).

W. M. Smith, Scotland.

Frank A. Smith, Port Burwell, R.R. No. 1.

POTATOES (ROUND WHITE TYPE).

Wm. Naismith, Falkenburg.
G. A. Burns, Paris.
Frank Farrow, Mt. Brydges.
D. Hamilton, Varney, R.R. No. 1.
H. L. McConnell, Port Burwell.
Andrew Schmidt, Mildmay, R.R. No. 1.
R. M. Mortimer, Honeywood.

S. W. Bingham & Son, Hillsburg, R.R.
No. 2.
Peter McLaren, Hillsburg.
H. F. Loney, Wiarton, R.R. No. 2.
H. L. Goltz, Bardsville.
Jno. A. Bennett, Campbellville, R.R.
No. 3.

POTATOES (LONG WHITE TYPE).

Wm. Naismith, Falkenburg.
Geo. Ruber, Arkell.
H. F. Loney, Wiarton, R.R. No. 2.
Jacob Lerch, Preston, R.R. No. 2.

R. M. Mortimer, Honeywood.
D. Hamilton, Varney, R.R. No. 1.
H. L. McConnell, Port Burwell.
Andrew Schmidt, Mildmay, R.R. No. 1.

POTATOES (ROSE TYPE).

Wm. Naismith, Falkenburg.	Frank Farrow, Mt. Brydges.
Geo. Ruber, Arkell.	H. L. McConnell, Port Burwell.
Fletcher Buckland, Wiarton, R.R. No. 2.	Andrew Schmidt, Mildmay, R.R. No. 1.

POTATOES (ANY EARLY VARIETY).

Wm. Naismith, Falkenburg.	R. Wilkin, Palmerston, R.R. No. 3.
Geo. Ruber, Arkell.	H. L. McConnell, Port Burwell.
Jacob Lerch, Preston, R.R. No. 2.	Fletcher Buckland, Wiarton, R.R. No. 2.
Jas. D. Steen, Meadowvale.	

MANGEL SEED.

Will C. Barrie, Galt, R.R. No. 7.	Henry Stokes, Chatham.
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TURNIP SEED.

F. McGillis, Colborne East, R.R. No. 2.

SUGAR BEET SEED.

R. R. Moore, Norwich.	Henry Stokes, Chatham.
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MEMBERS OF THE ONTARIO HORSE BREEDERS' ASSOCIATION
FOR 1917.

CLYDESDALES.

Airth, W. S., North Bruce.	Bewell, E., Unionville.
Annett, W. B., Alvinston, No. 3.	Biggs, F. C., W. Flamboro.
Arbogast Bros., Sebringville.	Bilton, Robt., Acton.
Armstrong, Geo. B., Teeswater.	Birdsall, T., Birdsall.
Armstrong, J. M., Locust Hill.	Black, John, Chatsworth.
Atkinson, R. A., St. Mary's.	Boag, John, Queensville.
Aitcheson, John, Ariss, No. 2.	Botham, Geo., Bradford.
Allingham, R., Newton, No. 1.	Boucock, Alfred, Lansing.
Alsop, Jos., Glasgow.	Bousfield, J., Jarvis.
Anderson, Duncan, Wingham.	Bowman, James, Guelph, No. 7.
Armstrong, John D., Stayner.	Boynton, T. E., Gormley.
Ashton, W. C., Bowmanville.	Boynton, Wm., Dollar.
Boag, Percy S., Queensville.	Brady, Jos. J., S. Buxton.
Borland, J. G., Claremont.	Brander, J. A., Elora.
Bowes, T. A., Concord.	Brandon Brothers, Fenelon Falls.
Brandon Bros., Forest.	Brent Brothers, Forest.
Breakey, J. W., Thornhill.	Brent, Wm., Raglan.
Broadfoot, A. & J., Seaforth.	Bricker, S., Fortwich, No. 1.
Brodie, G. A., Newmarket.	Brown, C. J., Seagrave.
Bunker, Fred, Brougham.	Brown, John, Galt.
Bull, L. J. C., Brampton.	Brown, L. A., Fergus.
Bunker, S. C., Whitby.	Bryant, John C., Pickering.
Burgess, Wellington, Norwood.	Bull, B. H., & Son, Brampton.
Baldwin, Chas., Hillsburgh.	Burgess, Wm., Wallaceburg.
Batty, W. F., Brooklin.	Burkholder, L. H., Stouffville, No. 1.
Bell Brothers, Barrie.	Burnett, Jos., Elgin Mills.
Bell, Jas., Wroxeter.	Burt, J. H., Hillsburgh.
Bennett, C. O., Claremont.	Campbell, A. D., Ilderton, No. 2.
Bailey, B., Hagersville.	Campbell, Donald, Mitchell.
Ballard, N., Pt. Perry, No. 4.	Campbell, H. M., Ailsa Craig, No. 1.
Barbour, E. T., Erin, No. 1.	Cattanach, D., Summerston Sta.
Batchelor, Samuel, Proton Station.	Cavanagh, W. R., Indian River, No. 2.
Beare, John S., Pickering.	Chambers, H. A., Caledon East.
Beattie, Patten, Longwood.	Clark, J. A., Sonya.
Beckton, John M., Glencoe, No. 1.	Clark, W. H., Mt. Brydges.
Bell, R. D., Hensall, No. 1.	Columbus, Daniel, Jarvis.
Bender, B., Gowanston.	Cooney, W. J., Stirling.

CLYDESDALES—Continued.

Cossins, Robt., Whitby
 Costello, D. M., Downeyville.
 Crawford, A. M., Thedford.
 Clark Brothers, Mt. Brydges.
 Cairns, T., Dublin.
 Craven Brothers, Ailsa Craig.
 Crawford, James, Belmont.
 Crawford, Thos., Balsover.
 Cameron, Colin, Etobicoke.
 Campbell Brothers, Alvinston.
 Campbell, Colin, Pt. Elgin.
 Campbell, M. J., Alvinston.
 Cargill, Limited, Cargill.
 Carson, Robt. T., Atwood.
 Carstairs, Robt., Fenella.
 Coates, Jas. H., Claremont.
 Colquhoun, Wm. Mitchell.
 Cowie, G. R. Milliken.
 Cowie, John W., Markham.
 Cudmore, Chas., Sprucedale.
 Currie, Chas., Morriston.
 Dennis, Edgar, Newmarket.
 Dix, Wm. A., Fergus.
 Doan, C. A., Queensville.
 Dolson, W. D., Alloa.
 Duff, Robt., Myrtle.
 Dunlop, Chas., Billing's Bridge.
 Daniels, Oscar, Brnfield.
 Davidson, Geo., Cherrywood.
 Davidson, Peter, Elora.
 Dawson, Adam, Cunnington.
 DeGeer, Howard, Kirkfield.
 Dennis, J. A., Nobleton.
 Dibben, E. J., Minesing.
 Dickson Brothers, Atwood.
 Dingman, Wm. J., Whitby.
 Doherty, Manning W., Malton.
 Douglas, T., Strathroy.
 Duffy, F. A., Mt. Elgin.
 Duncan, Thos. G., Woodford.
 Duncanson, A. G., Dutton.
 Dymont, S., W. Flamboro.
 Eagleson, A. E., Cold Springs.
 Eagleson, Robt., Stouffville.
 Evans, Earl, Granton.
 Fallows, H. S., Thamesford.
 Faris, S. J., Bradford.
 Faris, W. G., Bradford.
 Farlinger, J. A., Cornwall.
 Fisher, A. B., Ashburn.
 Fulton, John, Brownsville.
 Forgie, John, Claremont.
 Fortune, W. J., Paisley.
 Fraser, S. P., Woodstock.
 Faulds, Wm., Muncey.
 Ford, Geo. B., Galt.
 Forfar, A. W., Ellesmere.
 Forster, W. D., Markham.
 Fuller, G. T., Watford.
 Grove, Truman, Ringwood.
 Graham, James S., Udora.
 Grandy, R. C., Ida.
 Garbutt, Geo., Sandhill.
 Gerrie, G. H., Fergus.
 Gillies, Neil, Milton.
 Gleason, James J., Markham.
 Goodfellow, Harold, Bolton.
 Gormley, A. G., Unionville.
 Gould, J. B., Markham.
 Graham, Robt., Claremont.
 Graham, Tom, Claremont.
 Graham, Wm., Claremont.
 Graham, D. M., Atha.
 Gardhouse, J. M., Weston.
 Gerrie, W. G., Belwood.
 Gleason, Jos., Markham.
 Guest, J. L., London.
 Gray, Daniel, Hillsburgh.
 Greenlees, Hugh, Bowmanville.
 Groat, Chas., Oshawa.
 Gropp, Geo., Milverton.
 Hallman, E. B., New Dundee.
 Hamilton, J. C., Ochre River.
 Hamilton, Ronald, Navan.
 Hammond, Alex., Kingwood.
 Hand, Jas., Alvinston.
 Hassard, Jack, Markham.
 Hassard, T. H., Markham.
 Hastings Brothers, Cross Hill.
 Hayes, Geo., Oshawa.
 Hemsworth, H., Gowanston.
 Henderson, James, Belton.
 Hisey, Geo., Edgely.
 Hisey, Norman, Cashtown.
 Hislop, Archie, Brussels.
 Hislop, James, Stratford.
 Hodge, W. C., Science Hill.
 Hodgins, Geo. A., Carp.
 Hodgins, Howard K., Carp.
 Hodgkinson & Tisdale, Beaverton.
 Hoeg, W. W., Thamesford.
 Holtby, G. E., Locust Hill, No. 1.
 Holtby, J. E., Manchester.
 Holtby, W. E., Locust Hill.
 Howard, W. J., Fairbank.
 Howard, Chas. F., Hagersville.
 Hudson, Harris H., Bolton.
 Hughes, J. L., Bradford.
 Hummason, Fred, Embro.
 Hunter, W. J., Snelgrove.
 Innes, Alex., Embro.
 Innes, Jas. W., Woodstock.
 Intzi, S. R., Tavistock, No. 1.
 Irvine, Ed., Lauder.
 Ireland, W. L., Brussels, No. 5.
 Jackson, S. W., Woodstock.
 Jewell, W. E., Bowmanville.
 Johns, Jas. T., Oshawa.
 Johnston, Jas., Otterville.
 Jacob, Wm., Stratford.
 Jamieson, Andrew, Streetsville.
 Jebson, Jas., Enniskillen.
 Kay, W. H., Kirkton.
 Kilgour, Jos., Eglington.
 King, Frank, Sonya.
 Kneeshaw, J., Bradford.
 Kaufman, Andrew, Tavistock.
 Kay, Samuel, Drayton.
 Kidd, S. Eldon, Burritt's Rapids.
 Killing, F. S., Tavistock.
 Kirkby, H. B., Blyth.
 Knister, R. W., Comber.
 Larkin, J. D., Queenston.
 Leadley, Henry, Cookstown.

CLYDESDALES—Continued.

- Lee, Alex., Uxbridge.
Leonard, Jas., Schomberg.
Lonerganm, John, Indian River.
Lakeview Stock Farm, Bronte.
Lakey, Thos., Utica.
Lamont, Archie, Mt. Brydges.
Lasby, Lynn, Arkell.
Laurie Brothers, Agincourt.
Lawson, Alex., Pickering.
Leitch, John, Ailsa Craig.
Lemon, Jas. H., Silcote.
Lindsay, N. S., Macville.
Linton, Wm., Claremont.
Little, Frank, Blyth.
Lofthouse, Wm. P., Jarvis.
Lord & Cryderman, Bowmanville.
Lowes, J. W., Cavan.
Lyons, H. H., Dundas.
McIntosh, Donald, Embro.
McKinnon, D. B., Hillsburgh.
McLaren, Henry, Cobourg.
McNiven, Alex. F., St. Thomas.
McPherson, Donald, Argyle.
McTavish, Alex., Shakespeare.
Mancell, W. H., Fletcher.
Martin, Thos. H., Denfield.
Martin, W. H., Rosseau.
Martin, Wm. R., Lucknow.
Mathewson, R. M., Brooklin.
McCallum, W. J., Brampton.
McAllister, W. J., Nashville.
McAlpine, Angus A., Croton.
McRae, D. K., Glencoe.
McAvoy, T. C., Claremont.
McCague, Geo. A., Gormley.
McColl, Peter, Denfield.
McCort, Alex., & Son, Bolton.
McCugan, M. C., Melbourne.
McCullough, Donald, Oshawa.
McCullough, John, Oshawa.
McDougall, D. & A., Malton.
McEwen, John, Smith's Falls.
McGill, N. W., Janetville.
McGill, Warren, Kirkton, No. 1.
McIntosh, John, Ilderton.
McKinley, Angus, Camlachie.
McLachlan, Neil, Ailsa Craig.
McLelland, Albert, Belwood.
McLeod, J. A., Cobourg.
McMichael, Garfield, Seaforth.
McMurray, John F., Thamesford.
McPhee, D. A., Vankleek Hill.
McQuillan, Wm., Lucknow.
MacLean, T. D., Ormond.
MacRae, Jas., Pickering.
Magill, G. E., Ravenna.
Major, W. H., Locust Hill.
Mann, Allan B., Peterboro.
Martin, Murray, Hagersville.
Massie, R. F., Cobourg.
Maxwell, M. G., Locust Hill.
Merriam, Norman, Chatsworth.
Meyer, E. M., Unionville.
Millard, J. H., Stouffville.
Miller, A., Galetta.
Miller, Robert, Nanticoke.
Milne, Jas. A., Fergus.
Milne, R., & Son, Green River.
Montague, N. C., Jarvis.
Moore, John D., Queensville.
Miller, John, Jr., Ashburn.
Moore, Stephen H., Mt. Forest.
Morrison, Angus, Embro.
Myles, J. A., Fairmount.
Noyes Brothers, Denfield.
Ness, W. J., Gormley.
Nichol, R., Hagersville.
Nesbitt, Arthur, Oshawa.
Nesbitt, E. W., Woodstock.
Nieberlein, Peter, Mitchell.
Noyes, Wm., Denfield.
Oak Park Stock Farm Co., Brantford.
O'Neil, W. J., Arthur.
Ormiston, Wm., Oshawa.
Ormiston, W. G., Burketon.
O'Rourke, Patrick, Dublin.
Orr, John, Galt.
Parker, Thos., Camlachie.
Patterson Brothers, Millbrook.
Pendergast, John, Mono Road.
Preston, T. H. E., Bethany.
Prouse, S. J., Ingersoll.
Payne, Bernice, Bluevale.
Petch, Robt., Black Heath.
Philp, R. W., Nestleton Sta.
Pinder, John W., Sharon.
Pinkerton, D., Pinkerton.
Pogson, John W., Columbus.
Powers, C. L., Orono.
Pringle, James, St. Mary's.
Puckrin, Lorne, Whitby.
Ratcliffe Bros., St. Mary's.
Redmond, S. F., Peterboro.
Richardson, Frank, Columbus.
Robinson, Ed. W., Markham.
Reid, R., Maplecliff Farm, Ottawa.
Reidy, Peter J., Petrolia, No. 4.
Rennie, Jas., Blackwater.
Richardson, Albert, Grand Valley, No. 3.
Richardson, Fred, Columbus.
Richmond, Wm., Bright.
Robinson, R. J., Ailsa Craig.
Robinson, Wm., Markham.
Robinson, Wm., Newton Brook.
Roe, R. A., Hawkestone.
Rogerson, R. C., Fergus.
Ross, J. M., Ariss, No. 1.
Ross, W. J., Embro, No. 5.
Rothwell, John, Navan.
Russell, Andrew, Arnprior.
Sanderson, Wm., Wroxeter.
Schleihau, G. P., Rodney.
Scott, John, Claremont.
Scott, Walter, Sutton West.
Scythes, Thos., Thornton.
Shaw, Merton, Sharon.
Shaw, W. H., Mountain.
Siddall, Thos. H., Ailsa Craig.
Simpson, Robt. D., Bolton.
Sine, M. W., Stirling.
Slack, C. J., Claremont.
Slimmon, W. W., Glen Allen.
Smillie, A. G., Hensall.
Smith, Wm., Columbus.

CLYDESDALES—Continued.

Smith, N. A., Queensville.
 Smith, R. S., London, No. 3.
 Sonley, R. F., Port Perry.
 Spaulding, T. J., Aurora.
 Spence, R. J., Rodney.
 Sherrick, A., Ringwood.
 Smith, W. G., Enniskillen.
 Stewart, J. G., Strathroy.
 Stewart, John, Eden Grove.
 Staples, Jos. F., Ida.
 Steadman, W. S., Petrolia.
 Smillie, Jas., Hensall.
 Shellard, Morris, Galt.
 Scharf, Adam, Cumming's Bridge.
 Scott, Robt. J., Brussels.
 Stephens, Byron, Brigden.
 Stacey, Frederick, Cresswell.
 Stevenson, Jas., Melbourne.
 Stewart, D. M., Osgoode Sta.
 Storry, F. S., Stouffville.
 Story, Cecil, Claremont.
 Stuart, J. C., Osgoode.
 Swain, J. C., Cavan.
 Swinton, Neil C., Southampton, No. 1.
 Thompson, J. W., Ripley.
 Tindale, Jos., Fergus.
 Torrance, Jas., Markham.
 Trathen, Wm., Caledon.
 Tanner, C. W., Walkerton.
 Taylor, David H., Centreton.
 Taylor, Geo. S., Markdale.
 Thompson, Andrew, Watford.
 Thompson, W. D., Watford.

Thomson, Alex., Hillsburgh.
 Trelford, Coplen, Tara.
 Tuck, Robt., Eden Mills.
 Vice, Walter, Oshawa, No. 2.
 Vinter, Robt. G., Tilbury.
 Vokes, John, Nanticoke.
 Wagester, Wm., Tavistock.
 Wagg, Nelson, Claremont.
 Walden, Frank, Lindsay, No. 1.
 Walden, John, Lindsay.
 Walden, T. H., Lindsay.
 Wilkinson, C. B., Brussels.
 Wilson, N. F., Cumberland.
 Wright, Isaac, Wingham.
 Walter, D. W., Gowanston.
 Ward, F. H., Bethany.
 Watson, A., St. Thomas.
 Watt, R. R., Blyth.
 Watts, Thos., Holt.
 Whetterm, Geo., Manilla.
 White, Jos., Myrtle Station.
 Widdis, John, Conn.
 Wilkinson, W. L., Brampton, No. 5.
 Wilks, E. L., Blais.
 Willoughby, David, Elmwood.
 Wilson, Fred J., Rothesay, No. 1.
 Wilson, Geo. E., Janetville, No. 2.
 Wilson, Geo. T., Balsam.
 Wilson, Mathew, Fergus.
 Wood, Jas., Bradford.
 Woodley, Wm., Dundas.
 Wright, Fred, Claremont.
 Young, Jas., Abingdon.

STANDARD BREDS.

Alesther Hall Stock Farm, Ottawa, No. 1.
 Barrett, Chas., Parkhill.
 Campbell, N. A., Rockland.
 Charlesworth, L. O., Blyth.
 Clemons, P. F., St. George.
 Collins, W. A., Hamilton.
 Cowan, W. J., Cannington.
 Cruickston Stock Farm, Galt.
 Douglas, D., & Sons, Mitchell.
 Francis, J. A., Pakenham.

Goodison, E. F., Sarnia.
 Grosch, W. H., Milverton.
 Hurdman, W. P., Hurdman's Bridge, via
 Ottawa.
 Johnston Brothers, London.
 McCall, W. S., Simcoe.
 Plewes, Simon, Coboconk.
 Robinson, F. L., Peterboro.
 Sewers, Chas., Greenock.

SHIRE.

Bailey, Philip, Palgrave.
 Boyd, Mossom Co., Bobcaygeon.
 Bennett, J. W., Pt. Burwell.
 Devins, J. A., Kleinburg.
 Gardhouse, C. S., & Sons, Malton.
 Gardhouse, John, & Son, Highfield.
 Gardhouse, J. M., Weston.

Johnston Brothers, Croton.
 Lee, W. H., Simcoe.
 McAlister, W. H., Dutton.
 McLaughlin, Richard, Dunnville.
 Michener, M., Dunnville.
 Morden, G. E., & Son, Oakville.
 Semple, J. M., Belwood.

HACKNEY.

Anderson, Geo. M., Guelph.
 Beith, Robt., Hon., Bowmanville.
 Boyd, Mossom Co., Bobcaygeon.
 Coutts, R. D., Midhurst.
 Fowler, W. J. R., 464 Bathurst St., Toronto.
 Gardhouse, J. M., Weston.

Jewell, W. E., Bowmanville.
 Levack, C. S., Toronto.
 Levack, S. A., Toronto.
 Robinson, H. M., 883 Broadview Av., Toronto.
 Staples, J. F., Ida.
 Tilt, James, Brampton.

SUFFOLK.

Boyd, Mossom Co., Bobcaygeon.

BELGIAN DRAFT.

CANADIAN PONY.

Ballagh, R., & Son, Guelph.
Brodie, G. H., Newmarket.

McCallum, W. J., Brampton.
Miller, John, Jr., Ashburn.

THOROUGHBRED.

Barbour, J. W., 112 Dovercourt Rd., Toronto.
Bovaird, James, Brampton.
Campbell, David A., 1251 King St. West, Toronto.
Clancey, E. B., Guelph.
Crew, C. A., Scarboro Jet.
Davies, G. T., 311 King St. East, Toronto.
Doane, Jos., Toronto.
Dyment, S. & A. E., Barrie.
Gorman, J. G., Woodroffe.
Greenwood, John, 1426 Queen St. E., Toronto.
Jarvis, Amelius, Toronto.
Livingston, Mrs. L. A., Cobourg.
Thomson, Jas. A., Hamilton.
Thomson, S. B., Hamilton.
Thorncliffe Stables, Toronto.
Walker, Wm., 193 Cowan Ave., Toronto.

PERCHERON.

Adams, Walter, Hilton.
Allen, J. Leroy, Kingsville.
Allison, J. W., Morrisburg.
Anderson, W. E., Rossmore.
Armstrong, Andrew, Carp.
Atkin, Norman, N. Malden.
Beemer, Louis, Waterford.
Boulter, G. E., Picton.
Collver, H. C., Waterford.
Gardiner, J. L. B., Merlin.
Goslin, R. J., & Son, Cottam.
Hodgkinson and Tisdale, Beaverton.
Hogate, J. B., Weston.
Henry, W. A., & Son, Keswick.
Hill, W. G., & Sons, Queensville.
Lyons, A. H., Dundas, No. 1.
Morden, W. E., Oakville.
Pears, Wm., W. Toronto, Box. 188.
Prophet, Wm., Agincourt.
Renwick, J. G., & Sons, Wheatley.
Rutledge Bros., Sydenham.
Sloan, W. A., Fingal.
Soldan, H. C., Hensall.
Steinman, Jacob & Son, New Hamburg.
St. Louis, W. A., Ford.
Shantz, Titus S., Kitchener.
Vermilyea, N., & Son, Belleville.
Virgin, Chas., Douglas.
Wigle, E. J., Kingsville.
Wigle, L. P., Kingsville.
Wedrick, M., Nanticoke.

SUMMARY.

Breed.	No.	Directors.
Clyde	698	14
Standard Breds	31	2
Shire	16	2
Hackney	18	2
Suffolk	1	2
Belgian	1	2
Pony	6	2
Thoroughbred	30	2
Percheron	40	2
	841	30

ONTARIO SWINE BREEDERS FOR 1917.

BERKSHIRE.

Andrews, Joseph, Burk's Falls.
Aikins, James, Niagara-on-the-Lake.
Attridge, G. A., Muirkirk.
Bain, C. E., Taunton.
Baldwin, Melvin, Canboro.
Blyth, C. M., Guelph.
Brien, E., & Sons, Ridgetown.
Brownridge, W. W., Georgetown.
Boynton, W., Dollar.
Booth, E. W., City View.
Burr, J. F., & Son, Annan.
Clark, Jas., & Sons, Puslinch, No. 1.
Cutting, Geo., Aurora.
Cassidy, J. F., Centreville.
Campbell, C. A., & Son, Brantford.
Couke, T., Embro.
Coulter, J. W., St. Thomas.
Corkshutt, F., 49 Colborne St., Brantford.

BERKSHIRE—*Continued.*

Cowan, J. S., Atwood, No. 2.
 Dawson, A. & D., Kirkton.
 Dillon, J., Lyndhurst, No. 1.
 Dolson, H. A., Cheltenham, No. 1.
 Durst, J. C., Clinton.
 Duds, G. A., Rodney.
 Eames, John, Strathroy.
 Edwards, J. E., Kettleby.
 Elliott, G. B., Newton Brook.
 Gray, John M., New Liskeard.
 Green, Jas. W., & Sons, Bartonville.
 Gilliland, W. J., Forest, No. 5.
 Hyslop, R., Brantford, No. 2.
 Hill, Wm., Forest, No. 5.
 Kean, D. M., Orillia, No. 3.
 Kennedy, J. J., Maxville.
 Lang, C. J., Burketon Station.
 Larkin, J. D., Queenston.
 Lemon, Simeon, Kettleby.
 McCallum, W. J., Brampton.
 McEwen, P. J., Wyoming.
 McGregor, Jno. C., Tilbury.
 Mark, G. H., Little Britain.
 Maw, Frank W., Petrolia, No. 3.
 Metcalfe, Ivan, Wheatley.
 O.A.C., Guelph.

Ouelette, D. & A., Amherstburg, No. 1.
 Pearce, W. C., Hensall.
 Rainboth, N., Wiarton, No. 4.
 Reed, I., Orillia.
 Rogerson, R. C., Fergus.
 Ross, E. E., Kinburn.
 Robinson, Thos., Newton Robinson.
 Rodger, David, Drumbo, No. 1.
 Sinclair, P. J., Shakespeare.
 Smeeth Brothers, Crozier.
 Smith, G. L., Meadowvale.
 Stevenson, A., Atwood, No. 4.
 Stevenson, F. C., London Jct.
 Stiver, J. L. B., Unionville.
 Streatfield, Eric, Kearney.
 Teasdale, Frank, Concord.
 Thomson, A., Stratford.
 Tuttle, Geo. E., Metcalfe.
 Vanderlip, H. M., Cainsville.
 Vassaw, George, Morrisburg.
 Wagler, M., Newton, No. 1.
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Ontario Department of Agriculture

REPORT

OF THE

WOMEN'S INSTITUTES

OF THE

Province of Ontario

1918

PART I.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO:

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1919

Printed by
THE RYERSON PRESS

To His Honour SIR JOHN STRATHEARN HENDRIE, C.V.O., a Lieutenant-Colonel
in the Militia of Canada, etc., etc., etc.

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour
the Report of the Women's Institutes of Ontario for 1918.

Respectfully submitted,

G. S. HENRY,

Minister of Agriculture.

Toronto, 1919.

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Women's Institutes of Ontario, 1918

To the Honourable Minister of Agriculture:

Sir,—I have the honour to submit herewith the Eighteenth Annual Report of the Women's Institutes of Ontario, Part 1, for the year 1918, including the Statistical statement for the year 1917-18. We are presenting in this volume report of the Annual Convention which was postponed from the fall of 1918, to early February, 1919. In addition to reports of work and outline of plans as given by the delegates and superintendent at the Convention, we think it well to summarize and generalize briefly.

In Part II of the Women's Institute report, you will find list of meetings and lecturers, with their subjects.

The War-time efforts of the Women's Institutes are a matter of national pride, their contributions in cash and goods to the Red Cross and other patriotic organizations amounting to approximately \$4,000,000 during the period of the war. Many new members were attracted to the Institutes through the trying years of the war. The more than 30,000 members representing over 900 branches are more determined than ever to secure for their homes and their communities all those advantages which make for personal efficiency, stability in the home and community strength.

The Institutes continue to take keen interest in all "home" problems—food, clothing, housing, health, literature, etc. With the greatly increased value of farm products, and the continual rising cost of equipment, supplies and clothing, all that relates to the sustenance, comfort, and general welfare of the family calls for the closest study and judicious action.

Following the pioneer work in Medical School Inspection in the rural districts by the Institutes and a large number of courses in Home Nursing and First Aid, a general interest has been aroused in health problems, and the Institutes have received with much satisfaction the announcement of the Government that a complete health survey of the public school children in the rural districts will be made through the co-operation of the Department of Education and the Women's Institutes Branch. While some seven thousand have taken advantage of the Short courses in Home Nursing and First Aid, there is evidence that the call for such instruction will be greatly increased now that the war is over. At last, the health of the community, especially the rising generation, is receiving careful consideration by the people directly concerned and by Governments.

An ever-increasing, sympathetic, helpful interest is being taken by the Institute members in school problems, and with the provision that has been made whereby farmers' wives and daughters are eligible for election on the School Boards, this interest will be stimulated and their efforts made most effective.

The Institutes are interesting themselves in School Fairs, the beautification of the school, both inside and out, school gardens, sanitation and water supply, securing and retaining services of capable teachers, etc. Community halls, memorial halls and parks, travelling libraries, public libraries, athletic fields, parks, etc., are being encouraged and supported.

The programme for Conference of Lecturers and Demonstrators as given below is an evidence of the gradual development in the activities of the Institutes,--

Provincial and National Federation.
 Rural Hygiene.
 Physical Development.
 Medical School Inspection and Follow-up Work with Clinics.
 Social Hygiene.
 Laws Relating to Women and Children.
 Mothers' Pensions.
 The School as a Community Centre.
 The Consolidated School Problem as Related to Ontario.
 Ideal Features of a Modern Rural School.
 Home and School Club Work.
 The Hot School Lunch.
 Equipment for Playgrounds.
 The Housing Problem.
 The Returned Soldier and Reconstruction.
 Community Halls.
 Education of Girls.
 Travelling Libraries.
 Agriculture as Education.

Besides what may be termed the *regular work* of the Institutes, the following subjects were given consideration at the summer series of meetings for 1919,--

"Development of Community Life."
 "What Canada Demands of her Women."
 "Home and School Co-operation."
 "The Citizenship of Women."
 "The Influence of Dress on Character."
 "The Community Ideal."
 "The Evolution of the Country Woman."
 "What Reconstruction Means."
 "Things Girls Can Do—at Home, in the Community, in Business or Professional Work."
 "Such Stuff as Homes are Made of—and Communities."
 "When Your Girl Leaves School."
 "How We are Governed."
 "Housekeeping as a Business."
 "Burden of War and Future Generations."
 "Wild Bird Guests and How to Entertain Them."
 "Living a Life is More than Making a Living."
 "The Engagement Ring—a Talk with Mothers and Daughters."
 "The Possibilities of Women in Agriculture, etc."

The problem of the girl in the Institutes has become of increased importance, now that their time is not occupied with war work. The number of organizations ready to emphasize those problems of special interest to girls would warrant the securing of a supervisor for girls' Institutes.

The number of centres in which the women and girls have been brought together for patriotic work and are now looking for something to take its place, calls for an aggressive campaign for extension. This has already been undertaken with success in many districts and we confidently look forward to a healthful increase in the number of Branches in 1919-20.

The Institutes are already showing a keen interest in the provision which has been made by the Provincial Government for giving assistance in establishing Community Halls. The Women's Institutes are preparing to contribute liberally in establishing halls in many rural centres and already satisfactory progress has been made in the raising of funds.

The aim of the Institutes in this work is to utilize the community halls for the advancement of education, social intercourse, recreation and for all local activities.

There has been most gratifying development in the extension and nature of the work throughout the Dominion and in the Mother country during the past year. This will be stimulated by the Dominion-wide Federation which was effected at a meeting of representatives from the provinces at Winnipeg in February, 1919, and it is hoped that the Federation will become international when delegates will be present from the British Institutes and from across the line, at the first Dominion-wide Federation Convention to be held in the fall of 1919.

Stimulated by high ideals and guided by sound judgment, the Institutes have with confident frankness asked co-operation and assistance from individuals, societies, and civic bodies; the response has been free and generous, showing general confidence in the Institutes.

Voluntary co-operation has become a strong factor in Ontario rural life and development, and a wise guidance based upon the combined mature conclusions of leaders throughout all parts of the province is essential. Adequate provision should be made at once for closer union among the Institutes themselves and direct and timely co-operation with the Department of Agriculture, if the work is to be carried forward with assurance of satisfactory development and success.

The Women's Institutes of Ontario have developed into a truly community organization for the whole people, without class, sectarian, or partisan distinction, and are worthy of liberal assistance and encouragement from the Government of both the Province and the Dominion.

Their record is a most creditable one and the possibilities of continued service of real worth to the individual, the community and the nation were never greater.

For full information as to the record and programme of activities, I beg to refer you to report of Convention, including the Annual Report of the Superintendent, as found in this volume.

GEO. A. PUTNAM,

Superintendent.

STATISTICAL REPORT OF ONTARIO WOMEN'S INSTITUTES FOR THE YEAR 1917-18.

Institute District.	Membership.	No. of meetings held.	Total attendance.	No. of papers read or addresses delivered.	Receipts.				Expenditure.								Total expenditure.	Balance.
					Cash on hand per last report.	Members' fees.	Grants.	Miscellaneous.	Total receipts.	Expense for meetings.	Officers' salaries and expenses.	Postage and stationery.	Printing and advertising.	Lecturers' expenses and wages.	Books and periodicals.	Miscellaneous.		
					\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Algoma, Centre..	153	66	927	54	121 14	34 50	60 00	366 03	581 67	4 00	70 00	33 11	9 74	5 87	29 40	3,338 83	490 95	90 72
Algoma, East ..	95	52	826	15	87 86	22 25	12 00	765 08	887 19	.....	.....	4 06	5 50	.....	5 00	780 08	794 64	92 55
Algoma, N. Shore	149	94	427	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Addington	17	4	32	.....	29 92	4 25	15 00	.....	49 17	75	40	.....	.....	.....	.....	.....	1 15	48 02
Amherst Island.	60	11	197	8	37 82	15 00	25 00	512 14	589 96	3 50	13 00	4 28	.....	.....	6 50	480 62	507 90	82 06
Brant, North ...	665	212	6,581	213	271 23	165 75	113 00	9,200 32	9,750 30	32 53	45 20	144 82	63 82	13 30	22 59	8,634 72	8,956 98	793 32
Brant, South....	388	113	2,774	87	333 76	97 75	139 00	2,844 15	3,414 66	8 28	52 40	49 02	39 43	2 75	5 25	2,758 24	2,915 37	499 29
Brockville.....	105	54	468	14	149 64	26 25	47 00	1,017 88	1,240 77	.....	.....	2 18	7 30	5 00	2 18	960 88	977 54	263 23
Bruce, Centre...	191	76	1,649	112	137 64	46 75	181 90	1,234 06	1,600 35	8 50	45 50	14 01	9 95	6 90	2 50	1,232 44	1,319 80	280 55
Bruce, North ,..	304	121	2,057	52	274 79	65 00	397 15	1,532 80	2,269 74	16 10	55 50	53 13	27 27	35 25	15 82	1,847 30	2,050 37	219 37
Bruce, South....	241	78	2,158	92	515 69	60 25	246 96	2,037 43	2,860 33	37 60	21 00	10 44	21 26	8 25	65 2	2,474 74	2,573 94	286 39
Bruce, West	258	198	3,842	68	124 40	63 50	90 00	7,892 41	8,170 31	5 00	36 00	7 54	19 75	28 00	5 85	7,085 85	7,187 99	982 32
Carleton.....	382	140	2,832	88	194 77	88 50	64 00	2,184 11	2,531 38	23 96	21 10	49 39	23 00	11 15	3 36	2,168 86	2,300 82	230 56
Dufferin.....	613	299	5,563	127	525 84	166 25	333 50	3,027 78	4,053 37	86 88	68 40	53 06	63 18	17 15	15 91	3,245 93	3,550 51	502 86
Dundas.....	287	49	1,056	32	1,209 69	71 75	50 00	5,310 27	6,641 71	59 50	31 50	17 08	57 55	1 50	11 35	5,431 67	5,610 15	1031 56
Durham, East...	433	191	1,866	16	243 96	95 25	107 00	1,298 35	1,744 56	6 22	27 00	22 96	6 75	27 00	8 05	1,085 01	1,182 99	561 57
Durham, West ..	436	115	3,048	105	203 37	104 00	99 00	2,878 13	3,284 50	22 61	65 70	18 99	17 80	3 00	58 70	2,737 08	2,923 88	360 62
Elgin, East	248	105	2,090	70	240 33	59 25	207 00	2,475 34	2,981 92	13 50	62 00	52 13	28 10	1 00	90 2	2,538 21	2,695 84	286 08
Elgin, West.....	309	112	2,131	93	371 38	69 50	244 75	5,313 51	5,999 14	29 20	22 10	27 19	17 76	3 25	81 5	1,336 34	2,236 65	762 49
Essex, North....	130	61	1,254	27	228 26	32 50	65 00	1,263 99	1,589 75	13 69	33 25	12 21	7 50	7 45	.....	1,331 43	1,405 53	184 22
Essex, South....	413	70	2,045	79	437 57	103 25	106 00	1,221 96	1,868 78	38 70	54 33	16 55	27 60	6 65	.....	1,324 26	1,468 09	400 69
Frontenac	72	51	609	72	124 32	18 00	88 00	520 48	750 80	6 00	6 00	4 98	4 20	.....	.....	606 79	627 97	122 83
Frontenac, Cen..	39	26	376	4	12 90	5 00	30 00	487 10	535 00	.....	.....	1 07	.....	.....	.....	488 84	489 91	45 09
Glengarry	277	101	1,928	65	167 34	64 00	58 00	2,399 98	2,689 32	37 25	20 00	26 96	53 52	17 50	11 25	2,305 69	2,472 17	217 15
Grenville, South.	126	49	678	8	201 30	31 50	65 00	1,766 90	2,064 70	3 00	10 00	11 55	.....	7 50	.....	1,626 85	1,658 90	405 80
Grey Centre	575	230	4,063	196	775 82	140 50	331 00	5,163 98	6,411 30	21 50	64 85	69 85	72 05	28 45	28 33	5,010 23	5,295 26	1116 04
Grey, North	338	164	4,467	144	266 74	82 50	95 00	2,485 48	2,929 72	18 00	45 75	30 02	38 91	10 00	6 65	2,499 51	2,648 84	280 88
Grey, South.....	262	117	2,599	109	300 53	63 00	95 00	1,516 09	1,974 62	60 18	24 37	88 09	30 00	17 97	10 35	1,273 46	1,504 42	470 20
Haldimand	792	417	8,504	317	482 29	193 25	1,764 75	6,645 25	9,085 54	46 38	74 50	42 01	35 26	27 95	12 34	7,975 04	8,213 48	872 36
Haliburton.....	112	30	633	33	171 20	28 00	65 60	895 35	1,160 15	6 50	2 00	7 71	6 50	1 00	2 25	976 00	1,001 96	158 19
Halton	445	170	4,272	139	755 26	105 25	229 00	3,899 98	4,989 49	16 37	83 00	36 74	28 89	11 35	13 50	3,913 47	4,103 32	886 17

Hastings, East..	348	191	3,241	59	783	57	87	00	274	00	5,589	51	6,734	08	12	85	55	00	11	30	25	98	4	80	10	25	6,026	74	6,146	92	587	16
Hastings, North.	351	105	2,323	64	636	15	90	75	71	00	4,406	69	5,204	59	87	37	93	87	29	26	86	30	90	80	7	50	4,089	20	4,484	30	720	29
Hastings, West.	216	97	1,687	52	465	24	54	00	927	41	1,970	13	3,416	78	3	00	28	50	10	34	10	30	7	25	3	10	3,101	76	3,163	95	252	83
Huron, East....	206	95	3,451	.....	794	28	50	50	364	00	3,309	66	4,518	44	18	75	40	00	11	92	16	00	2	00	6	25	3,881	07	3,975	99	542	45
Huron, South...	52	45	519	25	162	96	16	25	803	01	466	17	1,448	39	61	68	26	25	7	64	8	40	6	20	1	55	1,166	07	1,277	79	170	60
Fur n, West...	370	224	2,900	132	508	11	92	50	878	13	3,703	00	5,181	74	42	75	51	40	21	10	22	45	8	60	4	20	4,091	22	4,241	72	940	02
Kenora.....	170	41	657	34	204	09	42	50	28	00	2,839	26	3,113	85	11	86	24	90	7	47	2	00	1	00	.....	.....	2,861	70	2,908	93	204	92
Kent, East.....	317	168	3,282	126	264	68	78	75	95	00	4,495	85	4,934	28	76	20	60	15	69	83	39	98	7	50	1	00	4,195	88	4,450	54	483	74
Kent, West.....	584	195	4,764	124	912	24	143	50	609	11	4,683	04	6,347	89	9	35	69	06	36	29	43	73	16	15	3	15	5,228	07	5,405	80	942	09
Lambton, East..	416	141	2,498	150	782	65	102	00	139	00	4,509	61	5,533	26	13	90	47	75	46	76	33	45	4	00	.....	.....	4,288	10	4,433	96	1099	30
Lambton, West..	372	232	7,271	52	471	93	89	50	215	50	3,217	25	3,994	18	7	00	35	00	18	93	16	16	11	78	12	25	3,176	90	3,278	02	716	16
Lanark, North..	306	203	3,219	15	450	24	76	50	88	00	4,727	97	5,342	71	15	00	11	95	36	90	23	70	6	25	2	00	4,280	75	4,376	55	966	16
Lanark, South..	288	139	2,144	47	248	81	71	25	100	00	3,198	51	3,618	57	13	75	35	55	22	61	20	09	23	35	8	45	2,813	75	2,937	55	681	02
Leeds, South....	269	83	1,791	60	476	90	68	50	218	00	2,344	11	3,107	51	64	01	29	30	30	92	27	37	.....	.....	1	25	2,424	12	2,576	97	530	54
Leeds, North and Grenville.....	183	78	758	30	332	93	46	00	71	00	1,812	89	2,262	82	7	25	15	00	21	51	18	10	3	00	.....	.....	1,693	81	1,758	67	504	15
Lennox.....	213	51	1,230	31	54	38	53	00	129	00	700	25	936	63	27	31	18	10	17	68	20	81	14	75	21	35	674	23	794	23	142	40
Lincoln.....	676	166	4,787	156	1,080	47	184	75	2,228	00	5,222	89	8,716	11	40	05	97	88	35	90	36	34	26	40	68	7,463	62	7,700	87	1015	24	
Manitoulin, East.	227	123	2,515	55	409	06	56	00	96	00	1,026	50	1,587	56	12	25	50	00	25	78	3	50	.....	.....	.....	.....	1,084	72	1,176	25	411	31
Manitoulin, West	151	116	2,321	114	245	63	38	25	56	50	1,087	28	1,427	66	45	66	44	35	33	29	15	50	3	00	4	20	849	37	995	37	432	29
Middlesex, East.	247	128	2,926	80	1,902	42	60	75	393	00	2,505	77	4,861	94	20	47	53	00	7	15	12	65	12	15	23	26	3,989	30	4,117	98	743	96
Middlesex, North	366	131	2,854	50	759	47	94	00	536	00	5,461	15	6,850	62	22	00	32	00	27	40	2	25	4	85	.....	.....	5,468	07	5,556	57	1294	05
Middlesex, West.	347	129	2,495	144	422	57	81	75	410	00	2,726	27	3,640	59	33	70	40	00	31	07	45	70	54	78	9	08	2,858	48	3,072	81	567	78
Muskoka Centre.	72	38	262	9	223	96	18	00	34	00	237	73	513	69	1	50	13	00	7	80	1	00	1	50	11	40	418	15	454	35	59	34
Muskoka, North.	201	128	1,507	51	383	17	50	25	73	00	730	65	1,237	07	7	00	35	70	29	60	12	88	9	75	4	18	521	15	620	26	616	81
Muskoka, South.	242	220	2,029	70	601	72	60	00	70	00	1,954	56	2,686	28	8	60	40	00	69	47	25	05	12	45	24	64	2,027	97	2,208	18	478	10
Nipissing, East..	30	13	340	.....	14	62	7	50	3	00	231	91	257	03	.....	.....	.....	.....	85	.....	.....	.....	2	65	.....	.....	240	28	243	78	13	25
Nipissing, West.	62	22	263	.....	11	64	15	50	6	00	76	51	109	65	1	00	.....	.....	6	53	.....	.....	5	25	75	.....	82	73	96	26	13	39
Norfolk, North..	470	177	3,001	109	299	97	106	00	125	85	3,569	69	4,101	51	15	50	55	60	21	24	50	11	5	10	1	30	3,457	20	3,606	05	495	46
Norfolk, South..	255	88	2,080	92	198	49	74	75	362	00	1,413	79	2,049	03	4	10	35	10	41	33	24	30	34	65	4	48	1,588	56	1,732	52	316	51
Northumberland, East.....	469	213	5,400	146	435	33	116	00	330	00	3,422	36	4,303	69	23	65	121	75	98	26	45	40	6	25	18	80	3,405	12	3,719	23	584	46
Northumberland, West.....	339	144	2,984	128	241	77	84	75	414	00	3,217	88	3,958	40	19	40	68	00	69	66	21	90	31	50	30	38	3,499	65	3,740	49	217	91
Ontario, North..	227	119	2,604	80	237	04	54	50	702	45	1,908	62	2,902	61	5	50	24	00	23	38	36	00	19	65	.....	.....	2,453	02	2,561	55	341	06
Ontario, South..	393	138	3,813	85	610	76	96	50	95	00	2,235	18	3,037	44	9	20	72	50	19	64	15	25	17	00	5	25	1,959	69	2,098	53	938	91
Oxford, North...	156	68	1,618	68	316	23	37	00	68	00	983	31	1,404	54	21	18	44	75	4	92	9	25	10	75	2	00	878	54	971	39	433	15
Oxford, South...	364	164	3,808	73	352	69	91	00	409	50	4,050	87	4,904	06	32	65	68	25	22	82	34	43	1	25	5	11	4,314	10	4,478	61	425	45
Parry Sound, N.	128	84	957	44	186	90	32	25	52	00	1,267	28	1,538	43	22	50	30	00	14	74	10	25	2	50	10	50	1,229	44	1,319	93	218	50
Parry Sound, S.	197	81	1,229	16	550	23	45	75	.....	.....	1,675	61	2,271	59	33	00	3	70	28	98	10	02	3	75	12	25	2,007	28	2,098	98	172	61
Parry Sound, W.	43	33	373	14	25	54	10	75	50	00	223	86	310	15	.....	.....	.....	.....	2	61	3	04	.....	.....	4	10	197	27	207	02	103	13
Peel.....	583	258	5,344	100	928	52	142	50	340	00	8,296	03	9,707	05	38	30	59	15	60	12	76	20	17	85	8	45	8,252	42	8,512	49	1194	56
Perth, North....	222	95	2,405	76	248	11	55	50	846	37	3,366	52	4,516	50	14	80	58	40	23	90	27	88	13	40	10	20	3,929	19	4,077	77	438	73
Perth, South....	323	93	2,195	111	531	76	74	50	336	00	2,200	03	3,142	29	33	60	41	00	62	52	23	20	5	77	.....	.....	2,634	33	2,800	42	341	87
Peterboro', East.	145	47	1,009	23	331	23	35	75	9	00	1,023	49	1,399	47	42	89	.....	.....	6	31	12	23	5	32	.....	.....	895	06	961	81	437	66

OFFICERS OF THE FEDERATED WOMEN'S INSTITUTES
OF ONTARIO, 1918-19

<i>Honorary President</i>	MR. GEO. A. PUTNAM, Supt. of Institutes.
<i>President</i>	MRS. WM. TODD, Orillia.
<i>Vice-Presidents</i>	MRS. JAS. REID, Renfrew, R.R. No. 2, and MRS. JAS. PATTERSON, Gadshill.
<i>Secretary</i>	MRS. B. O. ALLEN, Fort William.

Executive Committee—

The above with—

MISS M. E. PEARSON, Merrickville.
MISS HELEN L. BEARDMORE, Port Credit.
MISS KATE MCKAY, Brechin.
MRS. JNO. CLARK, Englehart.
DR. ANNIE BACKUS, Aylmer.

MEMBERS OF THE PROVINCIAL BOARD OF DIRECTORS.

EASTERN DIVISION.

Sub.

No.

- | | |
|--|-------------------------------------|
| 1. Dundas, Glengarry, Prescott, Russell,
Stormont | MRS. J. P. McNAUGHTON, Maxville. |
| 2. Carleton, Lanark, Renfrew | MRS. JAS. REID, Renfrew, R.R. No. 2 |
| 3. Addington, Amherst Island, Brockville,
Frontenac, Grenville, Leeds N. and
Grenville, Lennox | MRS. M. E. PEARSON, Merrickville. |

CENTRAL DIVISION.

- | | |
|---|--|
| 4. Hastings, Northumberland, Prince Edward. | MRS. W. R. MUNRO, Demorestville, R.R. 3. |
| 5. Durham, Haliburton, Peterboro, Victoria... | MISS E. E. HAYCRAFT, Bowmanville. |
| 6. Ontario, York | MISS KATE McKAY, Brechin. |
| 7. Dufferin, Grey | MRS. JAS. GARDINER, Owen Sound. |
| 8. Halton, Peel, Wellington | MISS HELEN BEARDMORE, Port Credit. |
| 9. Haldimand, Lincoln, Welland, Wentworth.. | MRS. L. C. BURNS, Caledonia. |
| 10. Brant, Norfolk, Oxford, Waterloo | MISS E. D. WATSON, Ayr. |
| 11. Muskoka, Simcoe | MRS. WM. TODD, Orillia. |
| 12. Parry Sound, Timiskaming | MRS. JNO. CLARK, Englehart. |
| 13. Nipissing, St. Joseph Island, Algoma,
Manitoulin | MRS. GEO. J. PRIDDLE, Silverwater. |
| 14. Kenora, Rainy River, Thunder Bay | MRS. M. SULLIVAN, Emo. |

WESTERN DIVISION.

15. Bruce, Huron, Perth, UnionMRS. J. PATTERSON, Gadshill.
16. Lambton, MiddlesexMRS. J. G. DAWES, Thedford.
17. Elgin, Essex, KentDR. A. BACKUS, Aylmer.

Mrs. Gould, Fenelon Falls, was named by the other Directors as a member of the Board, but does not represent any definite district.

Nominating Committee—

MRS. F. V. FOWLER, Perth, representing Eastern Ontario.
 DR. ANNIE BAKUS, Aylmer, representing Western Ontario.
 MRS. WM. TODD, Orillia, representing Central Ontario.
 MISS G. GRAY, Toronto, representing Central Ontario.
 DR. M. MCKENZIE SMITH, Gravenhurst, representing Central Ontario.
 MRS. A. H. WILLET, Cochrane, representing Temiskaming.
 MRS. G. LOCKING, Emo, representing Rainy River.

Representatives from the Ontario Institutes to Winnipeg Convention: MRS. WM. TODD, Orillia; MRS. JAS. PATTERSON, Gadshill; and a third delegate in case one of the others was unable to attend, MRS. B. O. ALLEN, Fort William.

Ontario Women's Institutes

The Seventeenth Annual Convention of the Ontario Women's Institutes was held in the New Central Technical School, Toronto, on the 4th, 5th and 6th of February, 1919. There were nearly 800 Institute members in attendance, about 500 being appointed delegates. The attendance at all the sessions was very large, and the enthusiasm and eagerness which the members manifested in determining the most important activities upon which to concentrate their efforts during the reconstruction period, was most marked.

OPENING SESSION—AFTERNOON, FEBRUARY 4th, 1919.

DR. MARGARET PATTERSON, occupied the chair.

The Convention was opened with the singing of the National Anthem, after which Dr. Patterson led in prayer.

THE CHAIRMAN: We all feel it especially suitable to have Lady Hearst with us. This is an organization of women who are doing things, and if there is a woman in the country who is doing things it is Lady Hearst. You all know so well of the many activities of her boys, that I am going to tell you of the activities of one of her girls, because I think it is a help when we are working hard ourselves, to know there are others working just as hard, or a little bit harder, and I do not think there is a young girl in Canada who has worked harder and more consistently than Miss Evelyn Hearst. She belongs to my War Volunteer Workers. She worked for eight months in Whitby, every day. She was home for about a day's rest when the call came for helpers in the Base Hospital during the influenza epidemic. One of the first volunteers was Miss Hearst. She worked for three weeks from seven in the morning until seven at night. I do not know that she had a day's rest until she again went back to Whitby, where another outbreak of influenza occurred, and she only came home a few weeks ago, and may go on duty any time now. So I think we might consider ourselves very fortunate in having such leaders as we have, and I felt I would like to tell you something of what Miss Hearst is doing because we do not hear so much about what the girls are doing as the boys.

ADDRESS OF WELCOME.

LADY HEARST, TORONTO.

I am very pleased to be with you to-day and to welcome so large and representative a gathering of the members of the Women's Institutes to this their Seventeenth Annual Convention.

When you met in Convention a year ago the greatest of world wars was raging. To-day we are rejoicing that peace has come again to a blood-stained world.

In looking back over the past four and a half years, with the call to sacrifice and labor that has come to the women of the Empire, it is a cause for pride and satisfaction that women have proved themselves equal to every demand made upon their energies and resourcefulness.

Many of us know something of the struggle within when the call came to give our sons to fight for the cause of Liberty. With smiles we sent them away, keeping our doubts and fears as to their return locked in our own hearts. No soldiers have fought more bravely or died more nobly than our own heroic sons of whom we are justly proud. They have made the name of Canada known and honored the world over.

And while they were fighting and dying for the liberty that to us all is dearer than life, the women of the Empire were called to help on the war by taking up the work and carrying on the labor, formerly done only by men. In response to the demand they took up work in factories, in making munitions, helping on the farm, doing V.A.D. work, nursing in hospitals and hospital tents. In every conceivable way women gave their strength and energy to help to alleviate suffering and to hasten the end of the war. In France there have been about 200,000 British women workers, doing anything and everything their hands found to do, and these women were not trained workers but women who had never used their hands before in any kind of work.

One cannot read the record of the Women's Institutes in Ontario without a feeling of gratification that so much real work for the good of the whole community has been carried on with such little display and ostentation. Yours is essentially a constructive work, and we must remember that the constructive forces of nature operate quietly and eternally. You do not despise the simple and seemingly little things of life because you know and I know they go to make up the really big and important things.

What any one woman may do for humanity may seem small, but when we multiply that effort by thousands and by tens of thousands, we create a mighty and irresistible force.

Small as the individual contribution may have been, the aggregate of women's work in Ontario was a magnificent help to our men, to the Allied cause and to humanity. Indeed, I am within the mark when I say that it would have been impossible for our men to have fought as well and as successfully as they did on the battlefield, but for women's help at home.

And here let me point out and emphasize that we, as women, should never forget that these brave Canadians who fought and died in Flanders and elsewhere, fought for and saved their homes in Canada, their women folk and their little ones from destruction and from evils indescribable. Truly, the women of Ontario owe a heavy debt of gratitude to those who went forth so gallantly and so successfully in their service.

It is a debt we can best repay by inspiring patriotism in our private and public life, so that the nation which has been preserved may go on happily and prosperously to its great destiny. Let your Women's Institutes continue to cultivate the broadest and most generous public spirit, resisting every effort to set class against class, realizing and teaching that the security and the welfare of the nation are the paramount consideration of every good citizen.

As women, you have a wide field for activity. Beginning with child life, you study and plan for its betterment, and you surround the young with wholesome homes and religious influences. You seek also to promote their educational welfare so as to equip them for the more serious duties of life, and you strive to improve social conditions everywhere throughout the land. I have said you have a special interest in the soldiers, but what shall I say of those families to whom the soldier father will never return. By every obligation that can rest

upon us as a people, we are bound, not only to protect these afflicted ones from neglect and privation, but to surround them with all possible comforts and advantages. They are a sacred charge left to us, and we would be unworthy of the great sacrifices that purchased our security, if we failed to sustain the widow and the orphans of soldiers in their hour of need and trouble. Whatever may be our shortcomings, we must not and will not fail in this respect. These are very strenuous and trying times the world over.

Peace has brought its problems not less serious than those of war. Therefore, I commend most earnestly to you every plan that will help to restore and maintain the social fabric. I specially urge you to encourage the practice of thrift and industry.

Everywhere experience shows that an industrious and thrifty population is a peaceful and happy one. Both by our example and our precept we should instil these lessons at all times, and we should realize that the increasing privileges of women bring with them increased responsibilities and opportunities for good.

It will be well for us all, and for the whole community, if we do our share, each of us toward making the nation prosperous and happy, and because that is your mission as a Women's Organization I bid you welcome and God-speed in the work and deliberations of your Annual Convention.

REPLY TO THE ADDRESS OF WELCOME.

MISS E. E. HAYCRAFT, BOWMANVILLE.

On behalf of the women representing the Women's Institutes throughout this Province, I desire to thank Lady Hearst for the kindly welcome extended to us to the Provincial Capital—the one city of which we are all proud and to which we all delight to come.

We are all pleased to be again privileged to meet in the assembly room of this magnificent educational institution. We are already beginning to feel very much at home here, and we trust that the helpful ideas advanced by the speakers and open discussion by the delegates, may bring practical benefits to all present and that they may, in turn, carry home these ideas to the Branch and District organizations which they represent.

It was thought last fall when our convention had to be postponed that we might dispense with the gathering this year. But I am sure that after we have heard the year's report by our Superintendent, and have discussed the problems that confront us in the future, the necessity for our meeting together will be fully justified.

We join heartily in thankfulness that the long looked-for, long worked-for, and long prayed-for time has arrived when the nations of the war-racked world are again at peace.

The uppermost thought for our first consideration is the work of reconstruction. We hear this subject discussed on every hand. It is up to us as Institute workers, to consider what part we are preparing to take in it.

The *Toronto Telegram* contained an article a few weeks ago headed "Have Some Women's Organizations Outlived Their Usefulness?" This is a timely question for us, as Institute workers, to solve or answer. Has our interest in the welfare of the youth of this country, in local charities, in hospitals, etc., flagged during the war? The saying, "These things ye ought to have done and not have left the others undone," may be applicable here.

Therefore, do we accept the kindly welcome accorded us by Lady Hearst for two main reasons: The work accomplished in the past and the programme outlined for the future.

Institute workers have stood shoulder to shoulder with churches and all other societies during the four years of war. They have given their loved ones and their money for every call put forth by the Government, their time knitting, sewing, etc., providing comforts for the boys in the trenches and hospitals, and the promotion of every activity undertaken for the relief of those who so nobly defended us on the fields of France and Belgium.

May I not refer here, to another pleasing effect of our war time experiences: the woman from the country, small town or village has learned in these years of combined effort to respect her city sister, and to know that wealth and position have not made her less a woman. Likewise, the city woman has learned to respect her sister in the country and to realize that she possesses the qualities of mind and heart that make her truly worthy of equal respect.

Referring to the outlook for the future, the thought comes, that after an experience in business life, perhaps some women may not feel like taking up the duties of the home again, but if our nation is to become great, or rather maintain her greatness, the claims of home must be given first place. Let us hope that all who have learned the lesson of thrift, sacrifice, and helpfulness will continue to use their God-given talents in their home life, so that when time is no more they may be worthy of the Master's "Well done."

Canada, as a result of the war, will be a changed nation, and let us hope that our women will be changed also and have a broader outlook on life.

We also accept the cordial words of welcome, because of the splendid programme we are to have presented for our consideration. Many conditions require improving, and it is our duty in a large measure to cope with them. There is no better way to attack this work than by meeting together and discussing the best ways and means to undertake these reforms.

As Institute workers, we are desirous of doing our part in solving the problems that confront our people and doing it in the very best way—in a business-like way, if you please. You know it is sometimes said that women do not do things business-like. Perhaps some of us do not, but let us all resolve at this convention to strive to do better, to improve on our mistakes and put before the world a work of which no one of us need be ashamed.

In harmony with Edgar Guest's beautiful poem, "Into Each Day" let us say:

Into each day bring joy and cheer, into each day bring mirth,
Into each day while you are living here bring love of the joys of earth;
Bring never a frown or a useless tear or never a needless sigh,
To-day is the day to banish fear, don't wait for the bye-and-bye.

Into each day bring your very best, a lifetime is but a day;
To-morrow you may be called to rest—now is the time to say
The helping word to a toiling friend, now is the time to give
The helping hand ere the sun descend; to-morrow you may not live.

Into each day bring all your love, your courage and kindness, too,
What will you say when you are called above of the good you didn't do
Will you answer you meant on another day to offer a helping hand,
To speak kind words that you didn't say? Do you think He will understand?

Into each day bring all your gifts, for of them the world's in need,
For smiles in the clouds are rifts, there's joy in a kindly deed;

REPORTS FROM WOMEN'S INSTITUTES.

SEYMOUR WEST.

MRS. M. MACOUN: It affords us much pleasure to report our Institute work if by so doing we may be of any service to our noble organization. Our work has been of a twofold nature, educational and patriotic.

Our patriotic work has been confined to home work, leaving our regular meeting days for regular Institute work.

We made comforts for soldiers and hospitals.

One particular feature of our work was regular packing of individual boxes for boys overseas. These boxes contained socks, eatables, soap, smokes, stationery, in fact everything a boy could wish to have. These articles were donated and collected monthly and there was always an abundance of goodies.

The success of our work depends on our good organization for work. We have, besides our regular officers, an additional director on each 'phone line. The duty of this director is to call all members on her line and give any message the President or Secretary may wish passed on. She also distributes yarn, Red Cross supplies, and collects from members for our boxes and Red Cross work. We have never neglected our regular Institute work which has been carried on by our young girls, through our yearly programmes. The young girls have charge of each meeting and have the privilege of asking one of the older members to assist them.

Our programme is divided into three parts: (1) A paper on a subject selected at the beginning of the year. (2) A paper on one of the standard authors whose works we intended to follow as an educational advantage. The younger members are much interested, and the educational benefits are very marked. Their papers would compare favorably with any we may read, and are improving year by year. (3) Social. The social or musical programme is the best we can provide, and if possible, must bear in some way on the subject for the month. By following our programme, our regular work has not been interrupted so much by our patriotic work of which, as a rural Institute, we have done no mean share by knitting one thousand pairs of socks, and making supplies, besides sending hundreds of boxes overseas. We try to raise the standard of members by thoughtful papers and regular study. No members wish to miss the meetings because of the benefits derived therefrom.

We are offering prizes to the schools in our district at rural fairs. We hope to encourage the boys and girls to greater production. The prizes are: (1) a large flag; (2) and (3) pictures having some bearing on incidents in our Canadian History.

We have also purchased one hundred buttons to present to boys and girls who have assisted in the "Greater Production Campaign." These are to be presented at public meetings presided over by the Institute, and which are addressed by prominent speakers, the subjects to be of interest to the rural community of which we are proud to form a part.

Let us then be up and doing,
With a heart for any fate,
Still achieving, still pursuing,
Learn to labor and to wait.

DELHI.—Delhi has a membership of forty-eight, and during the years of the war, Red Cross work occupied the centre of interest in our Society. At

present, refugee work is the chief activity which will no doubt continue for some time.

For the winter months, we have adopted the plan of securing some good outside speaker for each monthly meeting to talk on live topics of the day, which is proving very satisfactory, increasing the attendance and creating interest. The expense of this has been met, partially, by collections taken, the balance being paid from the treasury of the Institute.

During the war, we have kept two bank accounts, one for war funds and Red Cross, and the other for our Institute funds proper, so that we could feel free to use our own funds as we saw fit.

The piano which we purchased a year or two ago, and placed in the hall where we hold our meetings, has proved a splendid investment, in more ways than one. We have a musical part in each of our programmes, and we also realize quite a revenue from renting the piano for concerts and social evenings, which the young people hold nearly every week during the winter.

Last February, we secured the services of Dr. Grey, and held a very successful class in "Home Nursing and First Aid" which lasted two weeks. The lectures on bandaging, bed-making, emergencies and baby hygiene, with demonstrations, were intensely interesting and instructive.

One outstanding feature of our work during the past year was the successful launching of our first school fair, which we held last October on the school grounds. We received no outside help but had no trouble in financing the affair. The school board donated \$11, and we charged a small fee for entrance which amounted to \$14.55. We paid out \$25.75 in prizes, leaving a balance of \$1.20, the actual cost of the undertaking. The exhibits were first class and the children, as well as their parents, were very pleased and happy with the result. We offered 1st, 2nd, and 3rd prizes for all vegetables, bread, cookies, flowers, essays, speeches and on all running games and sports, knitting, darning, and patching.

Last fall, we had medical inspection in our schools with very satisfactory results.

GLEN MORRIS, Mrs. Jno. Carswell: The Glen Morris Women's Institute hold their meetings on the 3rd Thursday of each month in the Central Hall. We had about 40 members last year with an average attendance of 25.

During the year we had some fine meetings and some excellent topics discussed, such as co-operation between Home and School, Punctuality, and Social Service work by Miss Bawtinheimer, of Galt, who is closely in touch with that work. Last March we had Mr. McLaren, of Guelph, address us on "Community Building," and we heard Mr. Schuyler, our Agricultural Representative, on the same subject.

Last season, at our June meeting we opened a contest among the children in the community to encourage the trapping of ground hogs. This contest lasted for three months and cash prizes were given. The first prize of \$5 being secured by a girl of 12 who had 112 tails in her possession to show for her labor.

We also assisted in serving lunch at the Provincial Plowing Match and gave \$5 towards furnishing a room for returned soldiers in this city.

Our annual meeting was a Red Cross day, and a collection for patriotic work was taken up. We also made donations to the Belgian Relief Fund and to the Brant Motor Ambulance of \$25.

In the winter, magazines and other reading matter was gathered and sent to the Galt Hospital.

Last June we had medical inspection in our schools conducted by Dr. Smith, and we are hoping to get some helpful advice regarding the health of the children again this year.

We are now beginning community work of importance along other lines. The library board of our village and community have asked that we assist them in improving our library and in making in it a recreation room for the young men. This is quite an undertaking but we hope by co-operation to succeed.

THE CHAIRMAN: I have found already in many townships they are speaking of a memorial for those boys who have made the supreme sacrifice in France and Flanders. I see absolutely no reason why we should not have in every township a Memorial Hall. Let our memorials take some good sensible form. (Applause.) Put a tablet in your hall, and put the names on it of those whom we would honor. We need such a hall in every community for meetings of educational purposes, and meetings where we can have enough play to keep us normal, and in many communities there is not enough relaxation and wholesome recreation. A hall would fill the place that the Y.M.C.A. and the huts have filled in the lives of the boys over there.

Any suggestions on the reports we have heard will be welcomed.

MRS. MARGARET KENNY (82 years of age), Charlton Branch, New Ontario: I think it would be a good thing to have such a hall, but it would be impossible in a new country like New Ontario. We do the best we can by meeting at one another's houses, and at Christmas, we generally use the schools in which we hold an entertainment to bring the neighbors together, in order to get acquainted with one another. Such a suggestion as the Chairman makes would be good for the communities that are wealthier, and we will do our share.

THE CHAIRMAN: The trouble in so many places is, that the houses cannot accommodate everybody, but with a hall everyone feels free to go to the meeting.

A MEMBER: I would make the suggestion that we put in the resolutions that instead of a monument (which is a thing of beauty and a joy forever, but which does not help our boys or girls in any way) that we try to build a hall as a memorial.

A MEMBER: Some of us have been wanting to have halls for years for this purpose, long before the war, but during the war we did not feel like going into our pockets for such a purpose. Now, I think it is for selfish reasons that we are advocating the building of a hall for memorial reasons for our boys. Every community should have a hall and be prepared to build it, but we should not cover it up by saying it is for our boys. I have also heard suggested that the community, as a whole, might give a hall as a memorial, but the Women's Institutes should express themselves in some other way, for instance, in a beautiful piece of statuary or something else, such as a drinking fountain for horses which is badly needed on every country road, and would be useful as well as beautiful.

THE CHAIRMAN: I thought of the hall as a community hall, of the people and for the people. I would like to know the feeling of the women. Shall we ask that this be passed on to the Resolutions Committee for their consideration?

A MEMBER: Do you not think, if the Women's Institutes built halls, it would take away from the hospitality of the meetings as we have them in the homes? The hostess welcomes us when we arrive, and we all feel perfectly at home. Of course, I am not against the building of a hall, which could be used as a social centre and a place of recreation for all the community but, for institute meetings, I think we could do without a hall.

THE CHAIRMAN: I think it would be at the discretion of the Institute where they held their meetings. When you wanted to have a special speaker and a big meeting, the hall would be very useful. I do not think the hall would be so necessary for the Women's Institute, as it is necessary for everyone in that community, especially for the strangers within our gates. We could more easily get them into a hall than a private home, and get them to take an interest in the affairs of the community; and we could have dancing, the old-fashioned singing school, and things of that kind.

A MEMBER: Who is going to look after this hall? It would mean a good deal of money to keep a janitor; my idea was a drinking fountain!

A MEMBER: During the last two or three weeks, it has been my privilege to visit the rural schools in our neighborhood, and I think they should be used as places of social centre and for the holding of public meetings. I was much struck with the remark of one lady who said they were trying to bring about co-operation between the schools and the homes. Our schools must become, more and more, the training ground for our Canadian children, and our homes have not been taking the interest in the schools that they should. This can be done by the Women's Institutes in a manner which no other society can do. Some of the schools of the country are very drear and bleak, and children study there under conditions which the people at home would refuse to have. Why should not the schools be made bright, and attractive, and open every day in the week, if necessary! (Applause.)

A REPRESENTATIVE FROM NORTHERN ONTARIO: We have no halls in our town, and we want something that is going to be of some service, not a memorial that is a dead asset. Our soldiers have died at the front. Let us make homes so that their children will have comforts and pleasures in life, not drinking fountains for horses. They are good enough, but the horses can use the streams. What we want is something for humanity, for our thousands of little children who are orphaned. Those men have given their lives for us, and what we want to do, is to make homes for those children they have left behind them.

THE CHAIRMAN: We have only to let our Government know our feelings, and we will have mothers' allowances which will provide, not only, for the soldier's widow, but for every widow, making it possible for her to stay at home with her children.

MRS. GOULD, Fenelon Falls: Only yesterday, we met and decided to build a memorial hall, because we believe our young people's ability has not been brought out at all, for the simple reason that we have not a building suitable in which to give these young people their opportunities. We think we can accomplish more for our community by this means. We have already \$200 on hand, and the other organizations in our town, and the Council are willing to help us. There is no way in which the Women's Institute can serve the community better than by a hall, where there is no hall already.

A MEMBER: I am from the most western section of the Women's Institutes in Ontario, and at our last meeting, a petition came to us from the men of the town, asking for our co-operation in building a memorial, which was to be a monument built on the school grounds. We considered it very thoroughly and we felt that we had no money at the present time, with the present suffering of humanity, to spend on a monument, and we sent to the men of the town a resolution which read, that if the monument would take the form of a hospital we would be glad to assist. (Applause.) We have not a hospital in the whole

district, and only three doctors. They could put a marble slab in that hospital, and while it would be a fitting tribute to the boys of our community who gave their lives in Flanders, it would also alleviate the sufferings of the living. (Applause.)

A MEMBER, West Hastings: We consider a hall is necessary, but I think that we ought to have something else. We ought to have a monument that will last for generations to come, so that the rising generations will know who gave them their freedom and why they are living under the British Flag. I am not in favor of the hall as a solution of the problem. We are going to have a monument in West Hastings for our boys.

THE CHAIRMAN: I have talked with as many returned men as any woman here; I think I know the feeling of the men, and that is, they gave their lives for humanity, and anything that is built for them as a memorial ought to take that form. (Applause.)

A MEMBER: I move that we pass to the Resolutions Committee the consideration of a hall of some sort as a memorial for our boys, so that fathers and sons, mothers and daughters can get together.

MRS. BUCHANAN: I have pleasure in seconding that.

A MEMBER: I would suggest an open fire place in our halls.

A MEMBER: I would say that we, as mothers, should open up our homes, and give our young people an opportunity for a couple of hours of social entertainment; let each neighbor take it twice a month; would not that be better than having dances in a public hall?

THE CHAIRMAN: I think not. These halls would not be commercialized; we have got to be careful that dancing never becomes commercialized. I trust there are enough Women's Institute members to mother every community hall. Our young people will dance; it is only natural, and if we had nice rooms, under proper supervision, it is very much better than a home, because only those who are invited will go to a private home.

I have received a letter from the Imperial Order of the Daughters of the Empire stating that they are holding a meeting of the Municipal Chapter, tomorrow evening, on Child Welfare, in the Margaret Eaton School, and a most cordial invitation is extended to the Women's Institutes to attend.

ANNUAL REPORT OF SUPERINTENDENT.

GEO. A. PUTNAM, TORONTO.

Presented at Postponed Annual Convention, February 2nd, 1919.

It is five years last fall since we met under normal conditions to discuss the work of the Women's Institutes. You will remember that it was in the fall of 1914, about three months after hostilities had commenced, that we outlined, or attempted to outline, a war-time programme. Increased production and war-time rationing did not receive much attention at that time, and it was not until later that the importance of co-operation among women and the importance of women's work and direction was realized. You will remember that the appeal for funds to assist in providing a hospital ship had already been generously responded to and the Red Cross appeal for feathers was met most liberally.

The field of regular Institute activity at the last pre-war convention, in the fall of 1913, was very broad; to-day it is much broader, for we have not only the problems of five years ago but added responsibilities. In reviewing the programmes of pre-war days, it is surprising to note the large proportion of the long list of topics for discussion, addresses, demonstration, and exhibits, which bear directly or indirectly upon the problem of the child, and now to the child problem of the nation has been added the land settlement plans, the re-adjustment of industry plans, the social problems, the church problems, of the returned soldier. Many of the good men that left us as men have come back as children in so far as re-establishment and re-education are concerned; and those who went away as boys have come back as men, and what different men to what they would otherwise have been, and what ideals they have for the betterment of civil and industrial conditions.

We cannot get away from the child. Look over your programme. If we discuss *food*—it is the child to which we give first consideration.

If we discuss *clothing*—it is the child which presents the greatest problem.

If we discuss *health*—it is the child.

The school is, of course, all for the child.

Medical Inspection is all for the child.

The building problem is of little concern unless we have not only the husband and wife, but also the children to provide for.

You have an unlimited field of activity from which to choose, and it is no small responsibility for the officers of a Branch to determine the line of activity for the coming months. It must be left with the officers or special committees to determine, not what might be introduced, but what portion of the great variety of possible work will occupy their attention in the immediate future. And if it is a great responsibility for the individual branch to determine upon a programme of action, the responsibility becomes all the greater for the district officers and for those who have general direction of the work. We have always aimed to base our advice and determine our course of action so far as Departmental activities are concerned, only after a careful survey of conditions and in the light of the experience and advice of local and district officers and lecturers and demonstrators representing the Department. The responsibility is greater than ever, and we realize that with the expansion of the work, which is assured, the necessity for an advisory council truly representative of the Institutes as a whole is greater than ever, and I trust that you will take action in forming such a representative council or committee, with which Departmental officials may consult and advise from time to time. There is much which the individual members of such a council may do to stimulate a greater interest in the work in general and in her own section of the Province in particular.

The high motives which inspired the women and girls of the Institutes at the outbreak of war to forego the advantages of regular Institute programmes, in which you were so much interested and which were so dear to you, and devote your energies and resources to patriotic effort, is the same spirit of service to the individual, the community and the nation, which will lead you to accept the new responsibilities, and shall I say the greater responsibilities, which present themselves to you as leaders in an organization which will be looked to in an ever increasing degree for guidance in those activities, and there are many of them, which must be left to combined action rather than individual effort. Many problems of the whole people are already presenting themselves and will continue to develop as re-adjustment, reconstruction and re-establishment progress. The Women's Institutes have become

known, and have gained the well deserved place which they occupy in public opinion, through being thoroughly practical and ready to do the duty next them.

As an example, let us review what you have done along patriotic lines. During the Institute year 1917-18, the total contributions in cash and goods reached the sum of at least \$850,000 and all this largely by women who, at the outbreak of war, were hesitating to undertake even the customary amount of regular Institute work because of lack of help in the country homes; but at the call of King and Country they raised in various ways an average of \$28.00 per member in the one year. The total for the period of the war must be close to the four million mark, although it has been impossible to get the full returns for the earlier period of the war.

The Institutes have not always stopped to ask whether or not the thing which needed attention rightfully came within their province, but if the need existed, they were liberal in their interpretation of responsibility, and a means of meeting it was sought. If the task was beyond their powers, they used their influence to get responsible persons to act rather than to rest in inactive criticism and shirk responsibility. Sincerity, frankness and an earnest desire to help the other fellow always win out. The final result has usually been eminently satisfactory in your work, and let us in formulating plans at this Convention keep the one fact before us, that the Institutes have been and are for the whole people, a sort of clearing house where community problems, and, if necessary, the individual need, can receive that consideration which will result in the best service.

I am, after fifteen years of close observation of the activities of the women of the Institutes in Ontario, a firm believer in the keen judgment of the combined deliberations of a representative group of the earnest women of experience and responsibility, as we find them in the Institutes throughout rural Ontario. The responsibilities and resultant efficiency on the part of Institute members can be fully experienced only away from the centres of population. When the general manager, the purchasing agent, the governess, the laundress, the baker, the cook, and the general utility woman are combined in the one personality, and combined efficiently, the results are beyond what practical experience in the city or a class room can offer. Coming successfully through the experience of "Manager-laborer," as nearly all you women have, in the rural district, produces a womanhood of the keenest and sanest judgment and highest efficiency.

All successful undertakings even in peace times are directly or indirectly attributable to the efforts of women, for what can man do without the comfort and contentment that is only possible through efficiency in the opposite sex. The farm without the efficient home-maker is not a paying enterprise or a happy place of abode, and the success of the merchant, the artisan and the professional man depends to a large extent upon the comforts and efficiency found in the home.

With this efficiency acknowledged, it is inconsistent to undertake community effort in which the whole people are concerned without the combined deliberations and active co-operation of both men and women. Men are coming to more highly appreciate women, and women are coming to value more fully than ever the business ability of men as they become more closely associated and interdependent in public undertakings. There is great hope in dealing effectively with the educational problems of Ontario in the fact that the women are going to have more to do with the schools from this day on. Our schools, our libraries, our community centres, our churches, our hospitals, our charitable institutions, our houses of refuge, health campaigns, and other efforts of the people for the people will show more efficiency when we have the united action of all concerned.

The Institutes have gained their enviable position not through insistent resolutions, unreasonable demands and agitation, but by establishing confidence through keenness of judgment, saneness of suggestion and a readiness to do their part in the spirit of sacrifice.

Let us review briefly the results of Institute activities, the present situation, and the possibilities of the future. Those who have been identified with the work from the beginning need not be reminded that in the early days the homely, every day problems received first and almost undivided attention. It was, of course, quite natural that a keen consideration and scientific study of household problems would ultimately lead the women to consider those problems outside of the home which were vital to the best family life and to healthful, wholesome community advancement. In the reports to be presented at this Convention, a very wide field beyond patriotic effort will be covered, including not only home making problems, but health matters from a community standpoint, school betterment, social life, encouragement of the girls to make a systematic study of food problems, home nursing, first aid, and sewing. We will let those who have done the work tell of it, except to summarize a few features in which Departmental workers were an important factor. While the Department of Agriculture has a responsibility to perform and while there are certain things that must be done through the central office, don't forget that the success of the Institutes depend, only in part, upon Departmental action and Departmental support; the real success depends on what comes from the people themselves.

MEDICAL INSPECTION.

As stated on previous occasions, it never has been the intention of the Women's Institute Branch to cover any considerable portion of the Province in its Medical Inspection campaign, but to demonstrate here and there the great need for some systematic plan and to gather information upon which such a plan can be based. We have great hopes that in the near future a practicable plan for the rural districts will be introduced. In the meantime, the Women's Institutes Branch is asking some of its workers with the necessary qualifications to devote a portion of their time to Medical Inspection work. Most lines of work cannot be made a success without creating public opinion in its favor. Knowledge as to health conditions among the children of the rural schools and an understanding of the methods followed in the work always result in creating a favorable atmosphere for the carrying on of the work.

An examination merely for the purpose of informing people that their children are ailing is of little value in itself: *to be of real value it must be followed by treatment of the ailing ones; and in a health campaign to be of greatest value the aim should be to prevent illness rather than wait until treatment is necessary.* During the year 1917-18, 14,067 children were examined in 289 schools of the Province and the approximate percentage of defects were as follows:

Impaired vision	19%
Defective teeth	68%
Diseased tonsils	33%
Defective hearing	10%

An alarming condition! If you went to the Government and reported that the live stock of the country were affected as seriously as has been demonstrated in the case of the children, and asked them to spend large sums in righting conditions, it would not take long to get the money. Are not the children more valuable than live stock?

DEMONSTRATION LECTURE COURSES.

13,000 girls and women have, during the past six years, taken advantage of the very liberal offer to give free courses in Home Nursing and First Aid, Domestic Science and Sewing. I say "free," but there is a small fee charged for several reasons—first, to create a greater interest in the class, for it is a matter of common observation that people usually appreciate and are most anxious to take advantage of that for which a charge is made, be it ever so small; second, it enables the instructor to keep a closer check on her class and control it to a certain extent; third, to provide a means of covering the local expenses; fourth, to draw a larger number to the Institute, for non-members are required to pay 25 cents more than members, the extra sum entitling them to membership in the Institute for one year.

The Institutes generally do not fully appreciate the very liberal offer which yet stands good to the women of the Institute. I do not recall any centre where the members of such a class do not fully realize the superior value of this systematic instruction as compared to any other form of effort in Institute work. It gives sufficient definite information upon one line of work to be of lasting value, and places the members of the class in a position to make further study and experiment. Even though the instruction were not of great value, the opportunity of intermingling from day to day for a period of two weeks given the young girls in a rural district where new friendships are formed, new ideas imbibed and new ideals set up, fully justifies the time and expense involved.

CANNING CENTRES.

During the course of the Convention, you will get information on Canning Centres established at Barrie, Grimsby, Guelph, Mapleton, Niagara-on-the-Lake, Parkhill, Stratford. The total output of these seven centres for the season was as follows:

	Pounds.
Vegetables	21,970
Vegetable soup	633
Fruit	46,236
Dried fruits	160
Pickles	5,133
Jams	30,381
Jelly	23,409
Chicken	16,763
Chicken jelly	1,971
Chicken soup	6,219
Chicken fat	675
Total	183,450

with a total value of \$31,500.00, which was contributed to the Red Cross, mostly for shipment overseas.

It has been a problem of great concern with the Department to know just how far to go in urging activity other than patriotic effort during the past four strenuous years. We believe, however, that a fairly happy medium course has been followed, and interest has been maintained in the general work of the Institute to a sufficient extent to enable us to appeal effectively to the Institutes at this time for a very aggressive programme along general lines. This programme will include co-operation with the Department of Education in extending Medical School Inspection, circulating libraries, and introducing the hot lunch coupled with instruc-

tion in Domestic Science in the rural schools, also with the Provincial Board of Health and the Department of Neglected and Dependent Children. Then of course, our regular programme of Demonstration-Lecture Courses, will, we expect, be considerably extended.

At Monteith Demonstration Farm we put on a three weeks' course last fall. The girls from the surrounding districts came to this centre, where they lived for three weeks, and had systematic instruction given them by three of our most capable workers along the lines of Home Nursing, First Aid, Sewing and Domestic Science. We have a similar course of six weeks planned for Kemptville in East Ontario. We believe that demonstration-lecture courses of two weeks each, and a few of these special schools, will enable the people in the rural district to get educational opportunities somewhat approaching that which the residents of the larger centres of population have had for a great many years.

In many cases, and it should be in practically all centres where a class is held, a Junior Women's Institute or Girls' Club is formed and problems of vital importance to the mothers of the future considered, with occasional lectures from doctors and nurses of experience.

The lighter forms of agriculture will, we believe, be of greater interest for the women of the Institute from this time on. Where you have groups of girls and women who are interested in bee-keeping, fruit growing, poultry raising, vegetable gardening, etc., get the officers of the local Institute, or form a special committee, to make application for assistance by way of literature and instructors in these lines.

All Departments of the Government undertaking work in the rural districts are anxious to link up with the Women's Institutes, and I am confident that no community which desires to be in the march of progress, and is fully acquainted with the advantages to be derived through a local Women's Institute, will fail to organize. There are many groups of girls and women who have been brought together to undertake patriotic work and who are now looking for something attractive and of value to occupy their energy and time and afford a means of more closely cementing the bond which has been established through common effort. The splendid programme presented through the Women's Institute should prove attractive to these people. Notify the Department of any such group or Club and we shall be pleased to forward literature and direct or assist in organizing.

In view of the comments that have appeared in the press within the past few months, I feel it my duty to outline again the relationship of the Department of Agriculture to the Women's Institutes and some of the essentials to continued success of this important work. The success of any organization intended for the whole people requires a certain amount of supervision and direction; but if you wish for the best results you must allow every latitude for the development of individuality. In the case of an organization such as the Women's Institute, of the people and for the people, the very life of the society depends upon the development of individuality in the members and the societies. The Government has certain service to offer by way of literature, lectures, demonstrations, small grants, record books, forms, etc., to assist in carrying on the work. There must be some basis upon which this service is given, and we are always glad to have suggestions as to how the relationship between the Institutes and the Government can be made of greatest value to the people. It is a matter of general observation that the benefits derived through the Women's Institutes are largely the result of bringing into prominence local talent, the study of current literature, departmental literature, and standard works, the discussion of lectures delivered, and the development of business methods. Each branch is a law unto itself in so far as the carrying on of all *local* work is con-

cerned. The district organization likewise has the guidance of its own activities. When representatives engaged by the Department of Agriculture are in attendance at meetings planned for through the co-operation of the Department and the local Institute, we insist upon all controversial and political subjects being banned. You can readily understand that no Government, no matter what its complexion, would be justified in spending public money to provide instructors when the time which should be devoted to instruction is taken up with controversial and debatable questions or used for the furtherance of the interest of any party or sect. If the members of an organization in which all women and girls of the community are free to take an active part, introduce subjects which have a tendency to divide their members, they cannot expect permanent success. There are, as you know, certain regulations in regard to membership fees, reporting to the Department, number of meetings to be held, etc., which must be complied with in order to entitle the society concerned to the small grant given by the Department to assist in financing the work and to entitle the members to literature. The Government is the servant of the people, and the aim of the Institutes Branch is, in co-operation and consultation with representative women of the Institute, to encourage, develop and assist in carrying on those lines of work which are going to be of greatest lasting benefit to the whole people.

It is a mark of development and intellectual activity for citizens who have the franchise to make a careful study of political issues, administrations, etc., but where there is a likelihood of dividing the people by introducing such discussions, and the likelihood always exists, those interested should be advised to join an organization which has for its object the furtherance of the interest of some particular party, or policy, but to continue with the Institute for the discussion of problems in which the whole people are united, and these are many.

If you will discuss party platforms and controversial questions, you should, of course, belong to the Institute, and also join some other organization where these matters can be discussed freely and frankly, but let us continue to keep the Institutes for the whole people. (Applause)

In consultation with the Provincial Committee, and its executive to be elected at this Convention, it is the desire of the Department to assist in formulating plans for a permanent provincial organization upon a definite basis. It is the intention of the Department to assist the people of the Institute in formulating plans for organization which will meet their wishes and which may be co-ordinated with the efforts of the Department.

We hear a great deal about the necessity for greater social advantages in the rural districts, the place of the consolidated school, provision for amusement and entertainment, including games on a larger and systematic scale, a system of Medical School Inspection for the rural districts, etc. Governments do not usually go beyond expressed public opinion in introducing legislation and providing funds for the purpose of bettering those facilities which are dependent to a greater or lesser degree upon Government support. A judicious use of the facilities already at hand and united action on the part of the persons vitally concerned is to be expected before Government action may be looked for. How many public schools in the rural districts and the towns and villages are utilized for the whole people to the extent which would naturally be looked for before greater facilities will be provided. Why the schoolhouse should be occupied only during study hour and the parlour for visitor's day only, has never yet been satisfactorily explained. The school and the parlour should be the living room, one for the community and the other for the

family. It is not always possible to utilize the school in this way. Why not build a community hall if there is no public building available for use as a community home? Utilize what you have to best advantage and you may expect to get better facilities for carrying out your plans, either through local effort or Government assistance, or possibly both. If you make an effort to utilize what you have and are struggling under great disadvantages, and the Government is informed of the situation, I have no doubt but that some assistance would be given.

Five years ago you thought you were doing all that was possible with the shortage of labour, and were giving all the time possible to the Institute work, but you have kept "The Home Fires Burning," and in addition, raised nearly four millions in cash and goods for patriotic purposes during the war. If you really want some of the advantages already outlined and the Government will not respond, you can raise the money yourselves. There may be a tendency to depend too much upon Government direction and Government assistance in these days of re-adjustment. Is it not worth while to give to the girls and boys in the rural districts the education, home comforts, and social advantages which compare favorably with what many of them are leaving the country districts for to seek in the cities?

If you are to attract and hold the worthy men who have come back from the fields of battle to take up civilian life again, it can only be through an earnest effort to provide attractive and helpful entertainment, amusement and instruction, to take the place of the close comradeship and the unceasing activity which has characterized the life of the soldier. The isolation of working alone in the fields and in the barns will be more lonely than ever for him, and his evenings and Sundays must be made attractive, whether it be by literature, entertainment, sports or what-not. Make him one of the community and one of the family.

Let us consider for a few moments the introduction and the extension of the Women's Institutes, not only in our own Province, but throughout the Dominion and the British Isles.

Ontario with her 899 branches, and some twenty girls' Clubs or Junior Women's Institute branches, and over thirty thousand members (30,096,) has more branches and a larger membership than the rest of the Dominion put together and the prospects were never brighter for extension of the work to new centres and an increase in membership. Let us get together for an aggressive campaign of expansion; the need was never greater or the programme more attractive. You can approach your friends and neighbors with every confidence.

You have had placed in your hands a suggested plan for provincial organization. I hope that definite action will be taken during the present convention so that the Department of Agriculture may have a body with authority representing the people, with whom to consult and advise from time to time.

A meeting of representatives of Women's Institutes and similar organizations throughout the Dominion has been called for Winnipeg about the middle of February with a view to formulating plans for closer co-operation among these organizations, and it is expected that a basis of permanent national organization will be decided upon. I hope that this organization will be entirely of the people, and that a separate committee or Council will be formed among those directly connected with the Departments of the Provincial Governments offering assistance to the societies. It appears to me that this will be the ideal form of organization, and when matters of mutual interest are under consideration the executive of the people's organization and the committee of Government officials can confer and work together.

You are an important section, the mother of organizations which have grown to large proportions and which are destined to play an important part in local and national affairs in the years to come. Let us study the situation, respond to the call, and co-operate with other organizations and the Governments in building better than we have heretofore. Let us introduce the doctrine of *prevention* rather than correction or cure; and give our children every chance and encouragement to become worthy citizens of a progressive, prosperous, honourable Canada.

EVENING SESSION—FEBRUARY 4th, 1919.

DR. MARGARET PATTERSON, presiding.

REPORT OF STONEY CREEK BRANCH.

The majority here present are no doubt well aware that the Stoney Creek Branch of the Women's Institutes is the "Mother" Branch, and of this we are very proud.

This Branch was organized February 19th, 1897, with Mr. Erland Lee, who is now President of the Wentworth Board of Agriculture, in the chair. The late Mrs. John Hoodless, of Hamilton, to whom we are indebted for our Institute, addressed the meeting. There were 101 ladies present and two men.

Miss Watson, of McDonald Institute addressed the first meeting after the organization meeting. The meetings at that time were held semi-monthly—changed later to monthly—opening with the Lord's Prayer in unison, and closing with the National Anthem. As soon as the Government recognized us as an Institute, we became affiliated with the Farmer's Institutes, and have worked jointly with them since that time.

On February 9th, 1899, we decided to become affiliated with the National Council of Women.

On July 4th, 1901, Carluke Branch was organized. There are at present 12 branches in South Wentworth of which we are one.

The work was conducted in much the same order as to-day. Papers were written by members; addresses by doctors, delegates and others on Health and other important subjects were given, and the same discussed through the medium of a Question Box. Such topics as: The Child in Health and Disease; Proper Food for Children; Milk as an Agency for the Conveyance of Disease; were really stepping stones for School Inspection and Child Welfare of to-day.

Reading classes were held once a month at the homes of the members. Cooking demonstrations were given; dressmaking and domestic science classes were organized. Concerts and garden parties were held to keep up the social spirit and the joint annual meeting of the Women's and the Farmers' Institutes, at which the Government delegates attended and addressed the afternoon and evening sessions, were also held. Supper was served by the ladies then, as now.

The report of our work to June 1st was: 1,717 pairs socks; 205 suits pyjamas; 256 shirts; 125 pneumonia jackets; 12 doz. personal property bags; 36 trench caps. From June 1st to October, 1918, 150 pairs socks; 50 suits pyjamas; 35 day shirts, and 36 personal property bags. And now I may say we have started on our relief work, and the interest in it is especially gratifying. Also, we have been able to collect over \$450 for the benefit of different associations.

EXPERIENCES IN FRANCE.

REV. G. C. PIDGEON, D.D., TORONTO.

It would be nothing short of an imposition to attempt any set address at this hour and after the splendid entertainment that you have had from our returned heroes. One could wish that you could leave the hall with not only the music that they have given you ringing in your ears, but the splendid spirit that they manifest, cheering the rest of us on to the tremendous tasks that will face us in Canada in the near future. I do not think Canada has a greater asset to-day than the spirit of her men. If they have brought back the spirit that enabled them to conquer in France to their own loved land, we may be sure that no difficulty will be too great for us to overcome in the future. No problem is serious with a spirit like that to face it.

There are several things that these men symbolize to us; one of those things is unlimited capacity for sacrifice for the cause at heart. It did not matter what they were put to do; it might be to hold the key position in a great struggle; it mattered not; they cared not for life or anything else when the call of duty was upon them. That is, after all, a nation's greatest asset and that which enables a nation to be strong.

A young French soldier who saved the life of one of our air men was thanked by him; of course, his reply was, "I merely did my duty when a comrade was in danger." That is the spirit with which men have gone forward. It was a splendid spirit of co-ordination and comradeship; they were brothers, one and all, wherever you found them. I rather think some of them found us just a little bit cold after they returned. When I was over at the front, a letter was sent from a mother here in Toronto asking about the fate of her boy. All she knew about him was that he had fallen at Hill 70. The Official Records could give her none of the information she wanted. She had written to his Captain, who was at that time in London and he sent the letter on to me. I happened to meet some of the men of the 29th just before they marched out last spring to meet a threatened German drive, and one of the boys said to me, "I think I know that lad's chum, and if I can locate him I will get you any information that is available." The next day he came back with this story: that in the Hill 70 show, as our boys called it, some of our men had rushed a certain position which they held for a short time and afterwards were driven back. When they were in this advanced position they called for volunteers to go out and rescue some wounded men who were lying on the field. This lad was the first to go. Before they could hear from him they were driven back from the position, and they never saw or heard from him again. I did not get the information that the mother wanted, but I tell you it was a grand story to write home to Toronto, that the boy whose loss she mourned, had given his life in that way.

It does seem to me that that spirit of comradeship ought to be an asset in our Canadian life. We ought not to be as willing as we used to be to let other people fight on alone and never try to help them.

A few days ago, they published a little pamphlet with this title "What will the War do to Toronto?" Some of us, who live a distance from the war, think it does not matter how the people live or get on there; but now we are awakening to the fact that the interest of one section is the interest of all sections, and that in the interest of the whole community we cannot possibly neglect any section of it. Lloyd George said the other day, that if England had attended to her housing problem 25 years ago, she would have had a million more effective men available

when the war pressed most heavily upon them. Yes, we cannot neglect our slums, someone must suffer if we do. If the boys, as they come back, have the same spirit that they have shown here to-night, they will have rendered this land one of the greatest services that it is possible to render it.

Just one more thought! They have taught us that we do not need to tolerate age-old conditions simply because they have been old. They have taken hold of the greatest problems of the ages and forced them to a solution quickly. We thought that because certain things were established, and had been established for a long time, we had to leave them just in that way.

When we looked at the papers on the armistice morning we realized that we had entered a new world. You could not recognize the world of to-day with the world we had five years ago. Wrongs that we thought would endure for centuries have been swept away at a stroke. That spirit that takes hold of an issue and forces it through, is the spirit that we need. Nothing can exist that is not grounded in the moral convictions of the people. I remember some few years ago, a professor in the Kansas State University expressed his impatience in the things as they were, "My God I am weary of waiting for the Year of Jubilee, I know that the cycle of time is only a moment to Thee, but the world is weary of waiting, will it never be time to strike? The rights of men are a byword. The bones are not yet dust of those who broke the shackles of the slaves, and the shackles are not well rusted till the tyrants are forging new ones and guilty lips are sealed." The boys have shown us how to strike, and we in Canada must, if the country is to live, take advantage of the lesson they have given us.

One of the things that came to me was somewhat of a shock. In spite of the fact that they put me in uniform, I could not look at matters with a soldier's eyes. I was with the men eight months, five months behind the lines in France, and yet I felt the embarrassment of a civilian.

I had the pleasure of speaking with a British soldier at the same meeting a few weeks ago, and he was condemning the Germans for the violation of the laws of war. What I noticed was the things that he tolerated. He would say, "Now this is war, we have nothing to say against that." He had the Englishman's sense of fair play, and he would not lift a finger to condemn a thing that was tolerated by the laws of war. What I think is, that war is the greatest crime of all. We have spoken of the atrocities in such a way that we leave the impression that if the atrocities had been less, war would have been a tolerable thing. That which produced such results as we saw in France is the greatest crime ever perpetrated against humanity, and it is for the world to see that the men who are responsible answer for what they have done.

I had a little walk one night through Souchez Valley; I started from Chateau De la Haie, and walked up one side of that valley through Caraucy to the Arras Bethune Road, and then across, and down past the valley of Ablain St. Nazaire; that was the walk of the evening. That entire walk would be six or seven miles, and it took one through the ruins of four villages, and probably into the ruins of the fifth. In all that valley, with one single exception, there was not a single wall left over four feet high. There was not a single house left standing. There were places where you would know what the ruins were by the mound. Here was a great church practically level with the ground. There was the corner where the crucifix had stood, and nothing but a little mound left. Here, on the other side of the valley, was another church, all the outer walls gone, except a little bit of the dome. Not a single tree in that valley that was not scarred and broken, not a single shrub that was untouched by shot and shell.

The ground of that whole valley was torn by shot and shell till it looked like an angry sea. Not a living thing in that valley. Nothing there except the soldiers who had come into it to do their duties.

Here, a grave by the roadside and on it in English, "Madam So and So, Murdered by the Germans," the rest of the story not told. There, an old family Mausoleum torn open, and the bodies, after years of rest, thrown into the light of ages.

Over on one side was the famous Lorette Ridge. You will remember, that in 1915 the French sent 175,000 men to take that ridge, and of the 175,000,—100,000 were killed. That is war, waged according to the rights of war. You can turn to the left and go towards Arras, and it is a battle field all the way. Compare it with any other crime that you ever heard of, or can think of, and it makes the other crime look small.

I was reading in a magazine the other day, the story of the depredations of the Dalton gang, and the Jesse James gang away back in the eighties. They were criminals of some magnitude, and their crimes were well worth talking about. These desperadoes, and many thousands like them that ever wrought against humanity, amount to nothing, as compared with the destruction of France and Belgium. The thing that we fought against, and the thing that I trust will be put out of the consideration of mankind for centuries, is war itself. It was war launched on a peaceful people that made these atrocities necessary. War was deliberately launched on a peaceful world by certain men who wanted to impose their yoke on mankind. If there is any sense of justice in the world to-day these men will be brought to justice. I never think of these things but I think of a scene described in one of Oliver Cromwell's letters. The Ironsides had been victorious, but after victory, disunion crept into their ranks and their influence seemed paralyzed, and the Ironsides held an all day prayer meeting to find out from God where they had left His path so as to cause His blessing to be taken away and they rose from their knees with this resolution, or this conviction: That God's blessing had left them because they had failed to bring Charles Stewart—that man of blood—to justice. It was a great sight, the Ironsides on their knees asking where they had erred. It was a dark day for Crowned Criminals when they rose from their knees with the determination to see justice done. I am not going to say they were wise in what they did, opinions may differ about that; but the central principle, that the wrong doer should answer for his wrong, still holds good. I cannot read the Old Testament and I cannot study human history, without feeling that the establishment of justice is the first obligation that rests upon human society. Its vindication must come before everything else. The nation or generation that does not bring its wrong doers to justice assumes the responsibility for the wrong that they have done. Neither Crown nor Coronet should guard the criminals of history from receiving what they deserve for that which they have done. (Applause.)

A MEMBER: That is one of the resolutions that I think we should bring forward. The Women's Institutes have done so much for our boys. We think that if such a resolution were passed by this meeting it would have some effect. "That the women would not be satisfied unless full justice were done to the men who had caused this war." (Applause.)

THE CHAIRMAN: I think we can trust to the men who are looking after our affairs over there. If you wish that can be passed on to the resolution committee.

MORNING SESSION, FEBRUARY 5th, 1919.

MISS D. M. SUTHERLAND, occupied the chair.

REPORTS OF INSTITUTES.

THEDFORD INSTITUTE.

All of our meetings are held in our Rest Room, a place, we feel we could scarcely do without. This room is one of a block of buildings and is on the Main Street and among the business places of our town. We pay a rental of \$5 a month for it. In it, the members of our branch meet every Thursday, to make up Red Cross supplies. Twice a year we have social gatherings, as we feel the social part of our branch, a very necessary part. As Lake Huron is very convenient to us, we annually hold a picnic at Port Frank in July, which we thoroughly enjoy. Then in November, we have a social evening in our rest room, to which we again invite the husbands and families of the members. Our Secretary reads a report of the work done and that report has had a good effect, as it has shown to our friends the work we are doing, and they know this work cannot be done without money. The result has been, that in many cases, it has been the means of enlarging many contributions to Red Cross work.

We held teas in aid of Red Cross work until the Food Board sent restrictions. These we found a very sociable and satisfactory way of raising funds, realizing on an average, \$20 at each tea. Six or eight ladies would volunteer to serve in their turn and provide all refreshments.

Every Christmas, we make a gift of \$2 each, to a few old ladies in our town who seem rather alone.

Last Christmas, 67 pairs of socks were sent as gifts from our branch to boys overseas, who had enlisted from Thedford or the surrounding district.

We put penny bags in every home in town and surrounding country, asking for donations of at least one cent a day. These are collected the second week of every month, just previous to our regular monthly meeting. Contributions from these have amounted to \$40.00 a month. We held two concerts, one in March and another in May, realizing from these \$116.75.

In July we sent four crates of raspberries to Parkhill Canning Centre.

A donation from rather a novel source was made to our branch by Miss Jean McIntyre, a teacher in S. S. No. 12. She held an auction sale of handkerchiefs that had been left at schools, making the children repurchase their handkerchiefs, and realizing \$4.00 from the sale.

From the sale of old newspapers and magazines we realized \$24.

At our Fall Fair on October 1st, from the sale of tags we collected \$52.90. Total value of goods forwarded to Red Cross for year ending May, 1918—\$620.70.

Q.—How many members have you?

A.—That year we had a membership of 52; this year 60.

Q.—How often is the rest room open—just for the regular meetings?

A.—Our rest room is open any time during the summer, and then we hold our regular meetings and the Red Cross meetings there as well.

Q.—Have you any difficulty in finding anyone to take care of the rest room?

A.—No, we have no trouble that way. All our work is done voluntarily. A lady volunteers to put on the fire, and we look after the place ourselves. At times we have it scrubbed and cleaned out, but we attend to the sweeping and dusting.

Q.—Do the men build the fire?

A.—No.

Q.—Is the collection of old papers really worth the effort? We find newsprint at the present time is quoted at \$70 to \$80 a ton, but the boys in our town collected about 2,400 pounds and only received \$7.35 for it, and we felt that it was not really worth all the work.

A.—Yes, we do feel that it is worth while. The only difficulty is the storage of the paper.

A MEMBER: From our experience with papers, we find it quite worth while. We find out before hand what we are going to get for the paper, and then we advertise in our local papers a week or two before hand, asking everyone to have their papers tied up in bundles, and they will be collected on a certain day. The volunteers go out with their cars and collect them, and in that way we only have one day's hard work.

A MEMBER: We realized over \$80 every time for waste paper, so I think it is well worth while.

SHAKESPEARE INSTITUTE.

MISS BESSIE ROBERTSON.

In preparing the report of the Shakespeare Women's Institute we find the main theme must be war work, although, to some extent, our regular Institute work has been kept up and community betterment helped wherever possible.

Our means of raising money have been many and varied. At the beginning of the war, the Women's Institute was the only organization in our community to take up patriotic work at once, so a canvass was made which resulted in \$273.82 cash, and a bale valued at \$38.50, all of which was sent to the Canadian Red Cross Society at Toronto. This was followed through the winter by suppers and socials which netted about \$57.00.

The next year we raised \$65 by entertainments, \$35 by baking sales, \$24.54 by collections at meetings. Several small donations were received from members and friends from time to time. Toward the close of the year our Township Council surprised us with a grant of \$25. Early in the New Year the County Council agreed that a portion of the money voted by them to patriotic work should be sent out to the several societies in the county through the Reeves of the townships. This money was to be used for the buying of materials to be made up into garments for the soldiers on active service or for the Red Cross.

This has been continued up to the present time, and has enabled our women to do very much more sewing and knitting than we could have done had we to first find the money, then buy the goods.

Our buying committee is composed of two women who also do the cutting, give out the sewing, receive it when finished, and some do the packing. Most of our knitting is done by the knitting machine which was lent to the Institute by one of the members for as long as the war lasts. This has enabled us to send out quite a number of socks—350 pair last year.

Our sewing is done mostly by the members at their homes, although we did hold some sewing meetings during the winter.

In 1916, we received \$187.50 of County Grant money. The next year, \$393.75, and spent for goods \$396.94.

Voluntary collections amounted to \$64.65, while from entertainments we raised \$72.60. A barrel of fruit was collected by the members and sent to the Spadina Military Hospital.

Our report for 1917-18 shows: the County Grant Receipts to be \$630; collections \$28.93; entertainments \$61.28; and sale of paper \$5.30. We expended on goods \$633.51. Cash gifts to various patriotic appeals amounted to \$31.82.

Our aim in using up the county money is to double in value the actual money spent. Last year the cash value of the bales sent out was \$485. The market value (a very moderate valuation) was \$841.75. The last three years we have given our assistance to the North Easthope School Fair Association, which fair is conducted by the teachers and school boards as there is no county representative. We have given \$10 towards the prize list each year, made out the prize list for cooking, supplied judges for same, and assisted in the refreshment booth. This year, we supplied the materials needed for the sewing and knitting exhibits, (all Red Cross articles) which are returned to us after the fair.

Our latest interest has been the Canning Centre recently established at Stratford. As soon as the circular letter reached us, a special meeting was called, and in two days' time, an auto load of vegetables and apples was sent in to the Centre. As a means of raising funds we sold tags at our school fair, also at a local fall fair, which realized about \$20 for the centre.

A MEMBER: The Shakespeare Branch is very very small, and the few women that are in it have been working hard to accomplish what the report has now stated.

Q.—Did you appeal to the Council for this money?

A.—Yes. First of all we appealed to the Township Council, and then the Reeve there brought the matter before the County Council, and they have supported us all along throughout the last three years by a county grant.

Q.—Do I understand that they got a county grant of \$600?

A.—There was a grant of \$18,000 yearly for the whole county of Perth, and this was divided according to the number of institutes and societies that were doing Red Cross work throughout the township, and that would amount to possibly \$600 for the Shakespeare Branch each year, which would average about \$75 a month during the last three years.

A MEMBER: We, in Milverton, got \$75 a month from the County Council.

QUEENSTON INSTITUTE.

MRS. C. HOWARD FISHER.

Just the very fact that our Institutes are undenominational is, to my mind, our greatest asset in building up a community spirit. We have members from all churches—Catholic, Baptist, Methodist, English and Presbyterian, all working together in perfect harmony for the common good of our community.

When our Branch was first formed, several years ago, we met from home to home, but all longed for an Institute home; so we started collecting money, hoping to build a hall. Just at that time our School Trustees decided to put up a new school building, and we asked to be allowed to have rooms in their building.

This being finally allowed by the Government, we arranged to finish off space for a large hall for concerts, etc., also a room for Institute work with a kitchen adjoining. This school building is a memorial to Laura Secord, and is known as the Laura Secord Memorial School. This has all been accomplished, costing our Institute three thousand dollars, besides much time and energy. The money was raised by solicitation among other schools, by subscription, holding concerts, teas, etc., a Provincial grant of five hundred dollars and a Township grant of two hundred dollars.

Our kitchen is fully equipped with a four-burner Perfection Oil Stove, cooking utensils, and all necessary silver, dishes and table linen to set tables for fifty people; this part all being donated by the merchants of our district, upon the solicitation of one of the husbands, who constituted himself a Begging Committee of One to help us furnish our kitchen and dining tables. He also secured for us, a sewing machine and two cutting tables for our Red Cross work.

As a house warming for our rooms, we held a very successful Bazaar and Chicken Supper, which netted us two hundred dollars. This building was completed just as the war began, so the furnishing of our Institute room has been delayed, and all our energy has been turned to Red Cross work.

We have not a large membership, only twenty-two members, but since our Institute took up the Red Cross work we have opened our Institute room every Thursday for an all day meeting. Ours being a rural branch, most of our members live some distance, so our Thursday luncheons have become something of a social affair, our teachers usually joining us for the luncheon hour. All of this has proven helpful in fostering the community spirit and interest in the Institute. Many times, only five or six would attend lucheon, others dropping in during the afternoon to leave finished work done at home and to take away garments to make.

Money for Red Cross work has been allowed throughout Lincoln County by the County Council to all properly organized societies, so all our time and energy has been spent in sewing, rather than raising money. We purchased our materials and cut out all the garments ourselves. When completed, all is sent to the Red Cross Branch, St. Catharines, who forward it in large bales to Toronto,—now they pack direct for overseas.

Many of our Institute members are doing Red Cross work with their church units, consequently, our sum total is not as large in comparison as some other Institutes, still, we feel our few workers have done well.

During the past year, we have sent to St. Catharines: 146 suits of pyjamas 162 pairs socks, 19 blue flannel dressing gowns, 234 miscellaneous articles, 64 wash cloths, 53 towels and 55 treasure bags.

During September, one of our members held a soldiers' shower, from which we were enabled to send to the Davisville Military Hospital: 5 pairs of socks. 2 dozen handkerchiefs, a bandage roller and seventy dollars in money. Another member sold roses from her garden and realized \$17.75 for the Red Cross work. We all contributed fruit for the Canning Kitchen at Niagara-on-the-Lake during the fruit season and now are helping with the chicken campaign.

We have a Girls' Battalion who meet in our Institute room one afternoon each week for work. They have undertaken the chicken collection for us. Also, they collected \$90.70 in this district for the soldiers' Christmas boxes, one of which was sent to each of the boys from our district. Just now we are making a collection

for the Belgian Relief. We usually make this collection each year at the Christmas season.

Our regular Institute work is conducted one afternoon each month, at which meeting, we always try to have some interesting speaker, or a paper prepared and read by one of our members on some subject of particular interest. Whenever possible, the girls furnish the music.

The Lincoln County District Institute had talked Medical Inspection for several years, it being discussed at each meeting as to ways and means, and only last year succeeded in having it put through for this county. Our County Council first allowed a grant of \$200.00 to cover expenses, and later gave us a further grant of \$80.00.

Dr. Culver of Simcoe came through this section, making a thorough inspection. In our local school, at least, it produced some good results, several children having since then had their tonsils and adenoids removed. During the inspection one bright little girl could hear perfectly with one ear and not at all with the other: so Dr. Culver investigated more closely and discovered an obstruction. With what few instruments she had with her she proceeded to "hold a clinic," finally removing what appeared to be a berry, black, round, filled with seeds, which had swollen, completely filling the passage. Just giving that child back her proper hearing amply repaid us for the work we put into Medical Inspection. We are hoping for further work along this line in the near future.

In October, we had the good fortune to have with us Mr. Leake, Chief Inspector of Domestic Science for the Province. Niagara-on-the-Lake Institute had been invited for the meeting and sent a goodly delegation. The teachers from Queenston and St. Davids were present, and Mr. Carefoot, our County School Inspector, also came, and our work for this coming year will be in the interests of the school children, seeing if we cannot work out a scheme whereby they may have one hot dish for luncheon during the winter months. Mr. Leake was very patient in explaining just how it might be done, and we are hoping for very good results from his visit. We also have personal supervision at the noon hour.

In connection with our school we have a fair sized library, the books having been contributed by members of the Institute and the village people. This will be added to from time to time.

BONNECHERE VALLEY INSTITUTE.

MISS I. CARDIFF.

We have not any new way of raising money except having a booth at the fair. Last year we were fairly successful, netting \$125. This year we did not make nearly as much. We had a sale of home-made cooking last spring, a method of raising money that the members considered easy. For Prisoners of War Fund we have a monthly collection of 10c. A box social was another means of raising money, but this was not favored by all members alike.

We try to have the girls take part in the musical and literary programme. Prizes are being given for competitions, in plain sewing, baking, etc.

For most effective work in the Institute, we find the best plan is to appoint committees, not having too many members on them.

In one school, through the influence of the Women's Institutes, a drinking fountain has been installed and individual cups are used.

We think the regular work can be sustained by having members prepare papers and having discussion and debates on matters of general interest. We find that we cannot always carry this out in our meetings though.

This Institute for the last two successive years has given prizes for the best collection of vegetables at the Rural School Fair. In addition to this, we have given prizes for singing and public speaking.

Each month, two members who generally have a message for the pupils, visit the schools in their section and inspect the sanitary conditions of the school. This is appreciated by both teacher and pupils.

MOUNT FOREST INSTITUTE.

MISS M. B. KILGOUR.

Quiet, steady progress has attended the efforts of this Branch during the year 1917-18. The membership is 65, and an average of 44 members and visitors have attended the regular meetings. The programmes have been carefully arranged and varied to suit the tastes of the members who have profited, both practically and intellectually. The sources of revenue have been: Rent for piano, social and teas, and fees. The moneys raised were spent in adding to the appearance and convenience of some of our local buildings such as: New shades for the Opera House, spoons and dishes, and cash donations were given to the Agricultural Society. The most important work, of course, has been Red Cross work, carried on through grants given by the County Council of Wellington (a tax levied for this purpose). Amount received, \$700; value of articles made, \$963.17; value of fruit sent to Military Hospital, \$50.

The work has been carried on until the close of the year, and now, with altered conditions, new avenues of usefulness will be opened up.

REPORT OF SEWING CLASSES, COLPOY'S BAY.

MRS. S. GILBERT.

Our sewing classes, both last year and this, were most successful. Our attendance was splendid both years, in spite of bad weather. The interest taken was also good, and the work among the young girls was really creditable, but as to methods used to get them to join the class, I can't boast of having used any, as they were all so willing to take it they just came and offered their names.

We had five girls in our class this year who were not members of the Institute, but of course are now, so that in itself, is an advantage, as when they once become members they continue to join year after year.

Just a word about our instructor. It could be truly said of her that she was everything one could wish for, both as an instructor and as a friend. It could be truly said of her "One was better for knowing her." She was patient, kind, and willing to help and explain to everyone and anyone. This, I believe is characteristic of all demonstrators sent out by the Department.

PUSLINCH WOMEN'S INSTITUTE SEWING CLASS.

MISS JESSIE JEFFREY.

Puslinch Branch Women's Institute has held two very successful Sewing Classes, with Mrs. Woelard as instructor.

The first class was held in January, 1917, with three matrons and thirteen young ladies and girls in attendance. Every pupil made for herself a cotton house dress, and all, with the exception of two who were absent a few days through sickness, made themselves "best" dresses, and one made a tailored skirt.

Owing to a number being unable to attend the first class, a second one was held in November, 1917, and was attended by two matrons, and nine girls about 18 or 20 years of age. Each one made herself a house dress, six made themselves



Sewing Class at Wellesley.

full "best" dresses, three made tailored skirts, while two made waists—a total in the two classes of 27 house dresses, 20 "best" dresses, 4 tailored skirts and 3 waists.

The course is excellent, and any girl willing to learn could not help but be benefited by it. The instructor was well liked by all, and spared no pains in explaining and helping each one in her work, and all were more than satisfied with the results.

Our method of interesting the members in the course was simply to bring the subject up at a meeting, read the instructions and talk the matter over, then ask those who would like to take the course to say so. Those who were not present at the meeting, we saw personally, and explained the course to them, also did the same to non-members, and in that way were able to get them together.

Regarding the benefits received:

1st. Having to learn to do the simple stitches used in sewing first, gave the uninitiated the fundamental principle underlying the future work.

2nd. Having to cut, put together and sew the garments themselves, gave the girls confidence in their own ability to do things, while the finished garments were the crowning glory of their work and testified to their ability.

3rd. Being taught to take measurements and draft patterns ensured a continuation of their work.

The course has been of untold benefit to the girls, and one girl now goes out dressmaking and does very satisfactory work, and is engaged for weeks ahead.

Another, now does all the sewing for her mother and eight sisters. She told me recently that she was getting on fine. She said she knew very little about sewing before she took the course, in fact, thought she couldn't do it, but now likes it and takes pride in her work, saying "Why, I even made a silk dress this fall." Another, now makes all her own and her mother's clothes and makes them well. In fact, I may say, that all of them now make all their own house dresses and most of their other ones as well. The mothers are proud of their daughters' achievements, and are loud in their praise of the course.



Dresses made by Wellesley Class.

One of the married ladies who took the course said, that one would learn more in the ten lessons given, than could be learned in a whole year in a dressmaker's establishment, and she had had the experience. Personally, I can endorse her opinion, as I had also spent several months at the "dressmaking," and did not learn anything about measuring, drafting or fitting, while at the class we were taught all three.

MADOC, NORTH HASTINGS, INSTITUTE.

Madoc is a village with a population of about 1,000, surrounded by a mixed farming district.

Our success has been largely due to energetic and capable officers, well supported by a large and enthusiastic membership.

We have 88 members, about one-half of whom are farmers' wives.

Our chief efforts have been expended in raising funds for all patriotic purposes.

It is our proud boast that we have been able, as well as willing, to respond to each and every call as it came to us—we have tried to keep some form of effort before us each month.

In June, we entertained the Government lecturer and served a 10c. tea.

In July, our chief effort was a musical evening with Miss Menges; proceeds, \$71.50; also, during July and August several knitting teas were held at members' homes. In August, we held a garden party on one of the lawns; proceeds, \$100.18.

For September, we had a picnic at the lake for all members with their husbands and friends. "Silver collection taken."

In October, we sold lunch boxes and ice cream on the Fair Grounds, also pins and pennants, as souvenirs of the fair. This brought in the sum of \$144.66, though the weather was unfavorable.

Our event for November was a pie social, proceeds, \$66.75.

The special effort of the year was the Christmas Bazaar, which has become an annual event, and although held on the stormiest day of the whole winter, exceeded all former efforts. We had booths for farmers' produce, home-made cooking, fancy work, ice cream, fish ponds, also apron booth, each member having been asked to make and contribute 1 or 2 aprons. We served hot dinner and supper, also afternoon tea, with concert at night. Total proceeds, \$600.95.

In January, we held weekly knitting teas; net proceeds, \$24.40, and February brought us to our annual re-union and box social, which brought in the sum of \$101.89.

For March and April, we held a pancake tea, result, \$62.80; thus making last year's total \$1,624.26.

We have kept on hand a large supply of yarn for all knitters and have never refused a request for socks to fill out a parcel going to the trenches. Altogether we have sent over 2,000 pairs of socks straight to the trenches and have received most grateful and earnest thanks for many a parcel which arrived "just in time." We have also sent many parcels of comforts to boys who have been reported wounded.

For two years, we have supported two hospital cots, and as each soldier went away from our village and surrounding country we gave him a five dollar gold piece.

ATHENS BRANCH.

MRS. CHAS. F. YATES.

At our regular monthly meetings, we appoint collectors, two for each quarter of the town, who collect the promised amount the Thursday before our meeting when a report of the month's work is given.

When we wish to raise money for regular Institute work—outside of patriotic work, we have a concert, usually a play put on by local talent. This part of the work is in the hands of a "Dramatic Club" composed of Institute members.

Our girls nearly all always assist in the programme, not only in the musical part, but also give some fine papers. They also assist in collecting the monthly donations.

We have organized bands of workers in the surrounding country. These, we supply with work. In our village we meet every Wednesday to cut out garments

which are given four distributors, one in each quarter of the town. The finished garments are sent to one centre where they are packed. The yarn is in the hands of one of the members who gives it out, takes in the socks and ships them.

Our schools are considered first class; the Public School is new and the High School has been remodelled and enlarged.

We usually keep something going in our Institute besides the patriotic work. We have a splendid library in our town. The librarian, who is an Institute member, is paid by the Institute. Five out of the nine of the Library Board are Institute members.

This year, we purchased ten window boxes filled with plants for our town hall and we paid a man to care for them.

Not being able to have our village school entered with the rural schools for their fairs, we held one last year, and this year the Institute furnished seeds, purchased the prizes, and gave cash prizes. The fair, which was a success, was under the management of the Institute. We arranged for a concert at night.

At our last meeting our large Institute room was packed; we had grandmother's day. Every grandmother and elderly person was invited. Those who could not walk were brought in cars. Our programme consisted of vocal and instrumental music—old time music—and a paper given on "Ancient History of Athens, Ont." The old people were asked to relate incidents of their childhood. Refreshments were served, after which each grandmother was presented with a bouquet.

RODNEY INSTITUTE.

It has been our aim to continue regular Institute work along with patriotic work. We were fortunate in having a most capable President during the four years. The interests have been varied, the town library has been taken over—the books classified, and new ones added periodically. We hope to have a suitable and worthy juvenile section. A Horticultural Society is talked of, and a number are availing themselves of the garden seed offer made by the Department.

For some years past, the Institute has provided a bed of geraniums in the space in front of the Municipal Building.

What organization has not experienced a deadlock when appointing the officers at the annual meeting! One of the best plans we find to overcome this is to have a nominating committee. It has been their aim to have every member on some one committee. It lightens the burden for the President and Secretary who formerly seemed to have all arrangements to look after. The Committees of the past year were: programme, social and quilt committees, a donation committee, cutting and packing committee, also cemetery committee who have succeeded in keeping the grass cut and flowers tended—at times, doing the work themselves.

The District Officers of West Elgin are carrying on an educational campaign for rural Medical Inspection of Schools, and the different Institutes are working in their several localities.

One of the great needs to-day is education, and the women should, and I believe will, give every support for improved methods and compulsory education to sixteen years of age.

When it is asserted that 700,000 men eligible to be called under the recent United States draft law for military service, could neither read nor write, this is a startling fact in the 20th century, with all the opportunities afforded. We have

only to scan the situation in Russia, to-day, and see the appalling result of illiteracy; where the Bolsheviki have no respect for life nor property, having, on November 26th, 1918, turned machine guns on the venerable and sacred cathedrals, churches, and chapels within the Kremlin, Moscow, accomplishing irreparable damage.

In our Prairie Provinces, recent returns indicate 45,000 female and 47,000 male illiterates over ten years of age, with 102,225 persons between the Lake of the Woods and the Rockies who cannot speak the English language.

It is a pressing duty for Ontario women to interest themselves in the schools and lend moral and active support to all progressive measures—encouraging debates and social times in the rural schools, especially the community interest can be wonderfully fostered, and mutual uplift result.

Humanity needs development spiritually, physically, and mentally. Let us all take a more active part in the church, in recreation and in the schools.

DEMONSTRATION LECTURE COURSES.

THE CHAIRMAN: After the report that Mr. Putnam gave us yesterday afternoon, I am sure we all feel the immense importance of the demonstration-lecture courses. After all, it has been the only way by which we have been able to get in touch with the girls, and I believe, in very few cases, has a Junior Women's Institute been formed, without first holding a demonstration-lecture course.

For the Domestic Science, and Home Nursing and First Aid courses, the fees are 25c. for members, and 50c. for non-members, which entitles them to membership in the Institute for the ensuing year. These fees are used in defraying any expenses in connection with the courses. If there is any money remaining after expenses are paid, it is placed in the Institute treasury to be used as the members think advisable. The same fee is also charged for the Sewing course, but there is an additional fee of one dollar (\$1.00) per member in connection with this course, which is collected by the instructor and forwarded to the Department.

I thought it would be well this morning to have some practical demonstrations, to give you an idea of a few of the things that are really taken up in our courses, and we are going to ask Dr. MacKenzie Smith to take charge of the demonstration in Home Nursing.

MRS. STARR: The Newmarket Branch was very much inspired by the course, so much so, that we have a class of 30 to take up the St. John's Ambulance Course.

MISS MERKLEY, Morrisburg: We wish to express our appreciation to the Department for the excellent course in Home Nursing. It was wonderful how much we were taught in the ten lessons. Apart from the instructor's wonderful ability, she had a most delightful personality, and it was a pleasure to meet her. We had 75 at the opening of the class which increased to 95, and I am sure it has been a wonderful benefit to our community.

HOME NURSING.

Dr. MacKenzie Smith then held a demonstration in the making of a bed, changing the sheets while the patient was in it, and bandaging wrists and ankles: the women of the Institutes performing the actual work, with Dr. Smith supervising.

During the demonstration Dr. McKenzie Smith said: In the country a great many people do not know how to put on a reverse bandage, and our class is taught not only how to do this but to take temperatures, make beds, use first-aid methods, and all these different things.

In St. George, our classes were examined by the doctors who really were in sympathy with the work, because they know how much of a help it is for them in their practice if someone can put on a bandage to support a limb, take temperatures and the pulse, change sheets without exposing the patient, and give the foot bath or a warm bath while the patient is still in bed. Many lives were saved



Artificial Respiration.



Transferring Helpless Patient.

during the recent epidemic of influenza by the fact that someone in the home had taken the Home Nursing course and knew exactly how to look after the sick, because in many cases in the country they could not get a doctor. If the people only knew, as a whole, how discouraging it is to a doctor to go in, and only for one minute out of the 24 hours know the condition of his patient! If somebody in the home knows how to take temperatures, and how to carry out the directions of the doctor, the sick person certainly has a better chance to recover.

In giving the hot foot bath, we always put our patients in blankets, and also in giving the hot mustard bath. The night dress is opened in the front

and one arm slipped out, and you gradually work down. Then the back is done and the other night dress is slipped on. Then the limbs are brought up (bent at knee), and the feet placed in a pan, and you keep adding the hot water. The patient is in a comfortable position, and you can keep the feet in the water for from one-half to three-quarters of an hour. I find with delirious patients there is nothing that gives them as quick relief as the hot foot bath.

Our pupils are all taught how to take the pulse and temperature, how to keep a chart, so that when the doctor comes in he can know what the patient's temperature has been at certain hours, what he has taken in the way of food, the bowel movements and things like that, and the whole condition of the patient during his absence. I am confident that there would not be 10 per cent. of the people who have taken this course who would not be able to do all these simple things and realize what part the skin plays in the health of the body.



Demonstration in Bandaging.

Q.—How much mustard do you use in the foot bath?

A.—I usually use in a pan like that (large dish pan) two tablespoons of mustard. Many of our mustards are not strong enough.

THE CHAIRMAN: These are some of the dresses that were made at Dundas just last week, and Mrs. Pirie will give us a short address on the sewing course there.

SEWING.

MRS. PIRIE: I am very pleased to have this opportunity to say a few words about the sewing course we had in Dundas last week. I did not have the pleasure of taking the entire course, but I will tell you a little about the part I did take. Miss McKay, the instructor, very kindly allowed me to come to her boarding house in the morning, and she took my measurements, and when I went to the class in the afternoon, my pattern was drafted ready. If I had never sewed up a seam in my life before, I could not possibly have made a mistake on that dress; she was so very explicit. I must say she did not always give me her reasons at the time, but I found out after, there was no doubt about the results, but you must have confidence in the instructor because the first two or three days when she is cutting patterns and materials, she cannot stop to explain details, but later on at the end of the course, there is a half day devoted to a talk on patterns, and I cannot begin to tell you the value of that talk. We were shown how to use the patterns drafted to make any kind of dress whatever.



Equipment used by Women's Institute Demonstrators in Domestic Science.

The dress I made was a simple house dress; I was only in for two or three lessons, but the dress was completed, and everything about that dress I understood thoroughly. Some of the dresses made at the class you see here on the platform, and let me tell you they look just as well, or even better, on the woman than on the figure.

THE CHAIRMAN: We are very glad to have Mrs. Pirie with us, and to hear something of the sewing course at Dundas. She has said many good things about Miss McKay that she could also say about our other demonstrators.

We have no actual results to show in connection with Domestic Science Courses, excepting possibly the canning that is just at the foot of the stairs. While that was done at the canning centres, instruction is given in canning, so that any of our members who take advantage of our Domestic Science Course, provided they have watched closely, should be in a position to can vegetables and fruit, quite as well, as these are done. In addition to the outline of the course that was sent to you, our demonstrators are ever ready to give instruction on table setting and serving, on the care of the house, house decoration and house planning, and if they have further time, it is devoted to debating. I believe a class just last week had a debate: Resolved, "that a Domestic Science Course is preferable to a musical training for the homemaker." We try to make the course just as college-like as possible. I am going to ask the class from Thistletown, under the direction of Miss Gray, to stand.

This class started with a membership of 40 and now has increased to 80. We make it just as college-like as possible, and at college we always have our class yells. (Class yell given.)

We are now to have a discussion on District Work. You have always said you have not had sufficient time for discussion. We want you to make the most of the time allotted to you this morning. The first thing for discussion is the extension of work.

EXTENSION OF THE WORK.

MRS. WM. TODD, ORILLIA.

There is a living germ in the Women's Institute—the germ of service—of mutual helpfulness. Therefore, to extend the work is not merely to increase the membership of the Branches already organized and to add other Branches to them, but it is to spread that spirit of service as leaven is spread—by personal contact. So the District President should visit each Branch, get into sympathetic touch with its membership and study to make her office valuable to each Branch.

The average District President herself, a busy woman, may say "I have no time for visiting," but four years and a half of war have shown us that we always have time for the thing we wish to do; it simply depends on how deep the interest is—how broad the estimate of the possibilities in the work.

The District President should not only visit the branches, but she should make of herself a link between the Branches and the Central Office: (1) By helping the work of the visiting delegates to her district, creating an interest where there is none and developing it where it languishes. (2) By encouraging the Branches to avail themselves of the special courses provided by the Department; in short, by leading them to feel themselves to be parts of a great co-

operative scheme "For Home and Country." Good business methods should be demonstrated by the District Secretary-Treasurer, who should be an occasional visitor to the Branches, and should ever be in touch with them through correspondence. Best results can be obtained by the thorough co-ordination of all the benefits proffered by the Department. We cannot afford to be narrow, or to confine our efforts to one line, but every line of work open to our Women's Institutes should be presented in the most practical manner, that, in turn, every advantage may be the real possession of each Branch because understood and appreciated by them.

To serve as leader, the District President must prove herself true to the spirit of the Institute ideal or germ of life, and loyal to all the great constructive agencies, which that living germ of service calls into action. She can never lead by "knocking," but should strive to develop in herself, and in those she serves, a broad-minded discrimination between constructive criticism and mere pointless fault-finding of things in general.

Lastly, by every means in her power, she should foster co-operation between the Farmers' Clubs and the Women's Institutes, where both exist in a community, or between the men in places of authority and the Women's Institute, where the latter is in a town or village community. This is our great strength as a Women's organization—that there is a close community of interest between our aims and our work, and the interests of our Canadian men wherever they may be found.

MRS. BRETHOUR: It seems to me this paper leaves very little to be discussed. I feel like getting up and saying, "Them's my sentiments." This is my fourth year as District President, and I think Mrs. Todd has a very comprehensive idea of what the District Officer should do. Years ago, I do not think the District President ever thought about visiting the branches unless to meet the members at the Annual Convention. Now, it seems to be part of her office. I always find the kickers are not the doers, and we must make up our mind to take a little wholesome criticism, because none of us are above criticism, but we often find that those who criticize most do the least work. (Applause.)

In South Brant, I find the greatest strength to have been in our committee meetings. South Brant is very much scattered, with very poor railway facilities. On the farms we are pretty busy in the summer until about October, and to have a committee meeting in October has been of untold strength to us. Ask the presidents and secretaries and anyone interested to come and lay out the work for the year. I find it splendid to take up some work as a district, and let the branches run their own little show. That seems to have worked out very well. As a district we have undertaken hospital work. At first the feeling was very cool towards our hospital work, but it has become very enthusiastic.

MRS. REED: I would like to say that Mrs. Todd lives up to all her sentiments as expressed in that paper. She visits our Branches once and sometimes twice a year. If there is any difficulty in any of the Branches, her gentle presence is there twice during the year, and she has always succeeded in getting rid of anything of that kind.

It is a good thing to have a luncheon for the District delegates; there the members come in touch with one another, and when they come to the meeting they are ready to work in unison.

A MEMBER: I am District President of West Kent, and I have found by having programmes printed in the beginning of the year, with the District

President named for a certain month for each Branch, it makes it very pleasant for me. We have a rest room in Chatham where we meet once in a while.

A MEMBER: I would like to ask, should the District President wait for invitations from the Branches before visiting them? I always hesitate to suggest a visit from myself as it involves some little expense to the Branches.

A MEMBER: Miss McKay is our District President, and at the beginning of the year we get our programmes out, and we have our District President invited twice a year.

A MEMBER: How did Mrs. Brethour raise the money for her hospital work?

MRS. BRETHOUR: We ask the Branches to contribute, and we had a rummage sale, and a sale of home-made cooking. We have established a cot in a hospital in England. We had it advertised that the sale was to raise \$50 for the continuation of that cot, and we asked that the surplus be equally divided between the Canadian Red Cross and our hospital, but as some were not in sympathy with the hospital, we rescinded that motion, and had a sale for the Red Cross in December, and a rummage sale in May for the hospital.

A MEMBER: The previous speaker has presented the abstract view of the situation; I would like to present the concrete view as briefly as I can. I am sorry I am not a District Officer; our District Secretary who was to have spoken is ill.

I would like to review the advance that has been made in the last few years in the District of South Oxford. Before the war, there were, I think, seven Branches in the District, and they were all doing the ordinary work of Women's Institutes, that is, they were working for the betterment of the home and the community. Nearly all had some special work; Mount Elgin, a little roadside community, built a section of pavement, about a mile long, that was of great use to them; Tilsonburg Branch conducted a sewing class in the school, of which I cannot speak too highly; the results of which are seen to-day. In Burgessville, a library was started, and Norwich established a rest house for the convenience of the farm women who come into the town.

Then the war came and the work began to broaden. We thought we had been doing pretty good work, but we soon found there was a tremendous amount more to do. Each Branch became a hive of industry; socks and comforts were knitted for soldiers, and all kinds of war work was done. Previous to the war, the whole district did not raise very many hundreds of dollars per year, and in the last year of the war, \$5,000 was raised in cash, and the goods supplied by the Branches amounted to as much more, so that possibly we raised about \$10,000. It would be a pity at the present time to let this work languish in any way. I think the selfishness of the nation has been burned out of it, and we will rise to better things. In order to advance, I think that the District Officers of the Society ought to have a fraternal spirit, and meet the people with whom they come in contact on a common ground. In rural districts it is very difficult to get about, and it is rather a costly matter, and the funds at the disposal of the officers are not very great. Perhaps an improvement could be made along this line.

We are expecting to have a great influx of soldiers' wives, and these young women coming from England, Scotland and Ireland will not be very familiar with conditions in Canada, and life will not be very easy for them. I think a great work is before the Institutes to try to help these women and to give them a welcome.

ADDRESS.

DR. GEO. C. CREELMAN, PRESIDENT, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

I think I should have been very much disappointed had I not been invited to be present at this great Women's Institute gathering. I have come to look upon this as one of my annual outings, a place where I can enjoy myself to the full, and from which I carry away something that is going to be useful to me in my college work during the whole year.

Last fall it was my privilege to be in London, England, when the annual meeting of the Women's Institutes of England was being held. I was privileged to attend the meetings and enjoyed them very much. I was especially welcomed because I represented Ontario—the home of the Women's Institute.

In the last three years, England has made wonderful strides in Women's Institute work, having organized over 900 branches. This is most wonderful when you think of the conservatism of England, the distinction between the classes, and the tendency on the part of the citizens of that country to rather mind their own business, and let others do the same.

During the war, the time seemed just right for an organization of this kind, and with Mrs. Alfred Watt (formerly Madge Robertson, of Ontario) to take the lead, things have moved along very quickly indeed, and I only wish you could have seen the great assembly in Caxton Hall, off Victoria Street, on October 25th and 26th last.

One of the outstanding features of their regular meetings seemed to be that they had always something home-made to sell at the meetings from which the Institute got a percentage which was used for their general expenses.

Toy making has become the special work of the Women's Institutes. We saw some beautiful toys made by the members and they gave me some to bring home that you might see the result of their work. All toys had to be made out of scraps, and wherever a fair or agricultural exhibition was held, the Women's Institute had a booth at which they sold these toys.

One farmer's wife told me, that after looking after her husband and children and the home, she was able to make toys at night which brought her 15s. or \$3.60 a week.

Rabbits and ducks were more common than any other class of toys, and "Cuthbert" as he is called, was the most popular of all the rabbits.

OBJECTS OF WOMEN'S INSTITUTES IN GREAT BRITAIN.

These were very clearly stated at the meeting and fell under five headings:—

(1) *Stimulating Interest in Agricultural Activities.*

The meeting discussed where to get cheap pig feed and how to run a Poultry or Rabbit Club, and where to buy seed potatoes.

Back of it all, however, there was a scheme for the development of profitable and pleasant country life. "Rural Betterment" was the motto.

(2) *Developing Co-operative Enterprises.*

One woman said, "We must use our hands and head together. It is cruel that the farmer who brings his crop to fulness and ripeness does not get his

full price. We must learn how things can be sold together for the benefit of our people, and so enable us to get a better price than if we sold alone."

(3) *Encouraging Home and Local Industry.*

"We have bought goods 'Made in Germany,'" said one woman, "until that country has grown rich, and used our money to buy guns with which to kill our men in France and Belgium."

"We must now do many of these things ourselves, such as toy making, jam making, glove making, and so forth."

(4) *Study of Home Economics.*

It was suggested that British women use the Canadian bread mixer; that they make their own starch from potatoes; and that they dry their currants at home.

Since Women's Institutes have been established, many women have learned to paper and paint their houses, some have learned tinkering and cobbling; in fact, the Institute has taught many things that the country never thought women could do.

(5) *Provide a Centre for Educational and Social Intercourse for all Local Activity.*

At their Institute meetings they have tea and music and entertainment. In getting up a programme they always try to provide:—

Something to Hear.
Something to See.
Something to Do.

This provides interest for everyone. The Old Country people use your motto: "For Home and Country."

The organizers or lecturers, as we call them, were very enthusiastic about their work, and the following are some of the sentences gleaned from their talks:

"Do not let any section of the country feel that they are left out. As far as possible, see that every woman in the neighborhood is advised and consulted about the meeting."

"I have lived and studied rural life for many years, and I know that the Women's Institute movement is the only one that has touched the heart of the country people, and created a desire to learn. In organizing, a few facts go farther than much talking, so I tell them what other Institutes have done, and are doing, and leave it to them to go one better. If we give of our best and look for the best, we shall not be disappointed."

"The main thing is to make your hearers like you. You must feel yourself that you have a message to tell, feel it with all your heart, not think of your imperfections or yourself at all. Make each member understand that when she joins the Women's Institute she becomes a member of the great Rural Sisterhood, not only here, but all over the world."

"Much can be accomplished if one only understands enough, and cares enough about what she is saying, and has love enough, and understanding enough, and faith enough in those to whom she is talking.

"The vision of what it should be,
The understanding that it can be,
The faith that it shall be."

"We have to-day the finest army the world has ever seen. The Generals trained the soldiers but the mothers trained the men."

"Institutes in one county and district should exchange attractive programmes with their members. A good programme might be taken in its entirety and presented as an entertainment at the neighboring Institute. We have tried it, and it has worked well."

"Until we organized Women's Institutes we never thought of working together as a community, now we find it such a splendid opportunity to learn that the glory to live is to give, not to get."

"What we give we keep,
What we plant we reap."

Taking it all in all, the Women's Institute of England have been perhaps the biggest thing that has happened in country places, in that beautiful land of country homes—our Fatherland across the sea.

Speaking of Mrs. Watt, one of the Lecturers said: "Your school for Organizers was a revelation of beautiful thoughts and ideals directed by you into channels of practical usefulness."

"All my joy in the work of Women's Institutes is due to you, and all that I can do towards the success of the movement is my tribute to you of thankfulness on behalf of all the dear women who live in beautiful country places into whose grey lives the Women's Institute comes as a golden stream of sunshine. Love, sympathy, encouragement, practical education, co-operative assistance; opportunity for the development of individual talent; social intercourse brought into the centre of the rural community."

"I see down a vista of years, a steady force gradually developing into all that is best and finest in the individual, each a definite and necessary part of the community, who in working and waiting have one common cause, the Glory of God and the Best of our Empire."

Another stated: "It is a great idea, the slow awakening of much that is good and beautiful, the realization of the purpose for which it was created, and from these splendid schemes and objects as laid down by the plan of Women's Institutes, there should arise a changed and glorified country to respond to the love which formed it all out of nothing, but which determined each individual to become a part of a perfect whole."

MR. PUTMAN: It is quite in keeping, following the splendid address by Dr. Creelman, to give you this message from England. We have received a great many communications from England during the past year as to what they have done along Women's Institute lines, and for many years we have received inquiries as to what the Women's Institutes of Ontario are,—could they be adapted to English conditions? We have heard from President Creelman to-night that we have something to learn from English Institutes. I will give you a few quotations from letters received from England, most of which are from Miss Guest, one of the leaders for several years in the Ontario work.

NOTES FROM ENGLAND.

MISS EMILY GUEST.

"Ontario Women's Institutes have given birth to a great idea which bids fair to influence even wider fields than the British Empire.

"The first Institute was started by our Mrs. Watt of British Columbia, in September 1915, at a little place with a big name Hamfairpwllgwyngyllgogery-ekwyrmdrobwilllantysiliogogoch, Wales.

"We are surprisingly democratic. Our Presidents and secretaries range from a Marchioness to a tailor's wife, a Countess to the Cobbler's wife. The unit in common is the British home. It is a beautiful and inspiring thing to see.

"We had a delightful and successful Women's Institute Summer School for two weeks at Bangor University, Wales, in July. Mrs. Lloyd George gave us a nice address on the closing day. I had the pleasure and honour of representing England (and, of course, Canada) at the first convention of the Scottish Women's Institutes in June. They are closely following Ontario's constitution, as they consider it still the best of any.

"I have thought of my dear Ontario fellow workers so often this year with a certain happy feeling that we were co-operating closely still, though on a wider scale than ever before for "Home and Country." I hope you will give my greetings to the Ontario Women's Institutes Convention, and tell them that every little branch that is doing good work, is an inspiration, and has helped not only to save, but to upbuild the Empire as well as its own community. Stoney Creek should put up a monument.

"Our Conference fully partook of the great moving spirit of the times. Our women kept up the Women's Institutes' reputation which Ontario has made, for brief, pithy, straight to the point speaking.

"The Institutes were a magnificent bit of war-winning machinery, but they meet an even more profound need in reconstruction. The way they learn, in such a short time, to strike out for essentials in life and progress, delights one. It has been a joy to do the work of organizing here—there is such a wealth of fine material in womanhood to draw upon. All it needs is to be shown how to get together, and to go to work. The rest of the way it will discover for itself.

"Another pleasing feature is the lively interest of the Colleges and Educational authorities in the movement.

"A strong resolution on co-operation with the Government scheme for State-aided Housing was passed unanimously at the conference.

"The London gathering was at once very aristocratic and very democratic. Peeresses hob-nobbed with farmer's wives. The speech of the conference was made by a Labour woman on Housing."

MRS. GRAHAM, Brampton: With the Superintendent's consent, I would like to move that the greetings of this Convention go to our British sisters through Miss Guest, and that we assure them that we, as Institute Members, will take to our hearts the British brides who are coming to Canada. (Applause.)

THE CHAIRMAN: That does not require a seconder by the way in which it was received, and we may declare it carried.

DISTRICT ANNUAL MEETING.

MISS M. SCOTT, AGINCOURT.

A District annual meeting is one which should be of very great value to all the Branches in the district, and can be so arranged that each Branch will feel that it has a special duty to perform in making it a success.

In East York, the Board of Directors meet a few months previous to the holding of their district annual, to outline a programme in which they suggest preparations for making Branch reports interesting, for securing speakers for the afternoon to deepen the interest in Institute work, and for developing the social side, leaving the details, such as: date of meeting, arranging of sessions so as to be suitable to arrival of trains and trolley cars, and the advertising, to be worked out by the District Executive, and the Branch where the meeting is to be held.

The District Director is expected to report this meeting at the first Branch meeting, giving the Branch Secretary time for preparation.

When final arrangements have been completed, the District Secretary notifies all Branch Secretaries, requesting that they appoint representatives to the District Annual and give the District Secretary an idea, as near as possible of the number of members all told, who are likely to attend, and that the Secretary herself come prepared to give a brief summary of the year's work, making her report as interesting as possible.

As a District Annual is made up of the representatives and other members from the Branches, we find an audience eager to listen to the District President's address and the District Secretary-Treasurer's reports, and the Branch Secretary's reports, and ready to adopt new ideas if they are to be of any benefit to their own Branches. Success for our motto, "For Home and Country," places before us great opportunities, as well as great responsibilities.

At the luncheon, the social side is a very pleasing feature. Many good ideas from some timid member are available at this time.

The afternoon session, after any unfinished business is completed, is given to one or two speakers, as the case may be, along with vocal and instrumental music.

The speakers are selected with a view to deepening an interest by giving a broader view of work undertaken by the Institutes Branch of the Department of Agriculture, which we all know gives a large field in which to work, and one always helpful to a band of Institute workers.

A MEMBER: Supposing the District extends over 30 miles, it is quite a difficult thing for the officers to get together, and in the County of Grey we are divided into three districts. In Central Grey, of which I am President, I have to drive 40 miles to get to our County Convention. In the County of Grey, the District pays the expenses, but I think it should be divided into smaller sections. Last fall I planned to visit so many Branches when the epidemic broke out, and I was detained nursing the influenza for almost a month. I think it is a very difficult thing for the farmer's wife to leave her home and visit the Branches, and I think it ought to be done by somebody in the town who has not the care the farmer's wife has.

MISS HAYCRAFT: I am not a farmer's wife, but last year when I was District President, I did visit my Branches, but I got into trouble because we are so far apart. One of our Branches is 16 miles and another one 20 miles away, and there is no other way of reaching them except by driving.

A MEMBER: I had the honor of organizing one Girls' Institute. We have 23 members from 13 years of age to 22, and it is a very enthusiastic Branch. A meeting was held at my home last Saturday, and I would like you to hear the paper that one girl gave. The girls have done a great deal of Red Cross work, and I am very proud of them, even if I have not visited many of the other Branches. I think they ought to be able to attend to themselves, and I feel like looking after the young girls.

A MEMBER: I have been a District President and Secretary not only as a farmer's wife, but also as a town woman. Perhaps the farmer's wife finds a difficulty in getting away from home, but there is no farm home going to suffer if you go away for a day. Your people will appreciate you so much more when you return. I have found that out. I believe I was the first District President that visited every Branch the first year I was in office, and some of the Branches which I felt needed advice, I visited twice. As District Secretary, I have visited every Branch, and I feel that the Branches give me such a welcome that I am always glad to go to them, and they seem to be glad to have me.

I have a household to look after, but we can only live once, and perhaps we can pass along good to someone else, and it lifts the burden of our own household a little to get out and see what trouble somebody else has. Do not be afraid to leave your home for just one day, for it will not be gone when you get back.

Q.—How far does your District extend?

A.—The farthest Branch, I believe, is 24 miles.

THE CHAIRMAN: I am sure we all feel that the time is opportune for the extension of our work. There were many girls' clubs formed for the purpose of war work. Now they are at a loss to know just what they are going to do. It is up to the Women's Institutes to see that the work is extended. Not only, must the District Officers feel their responsibility in this regard, but the Branches also.

GIRLS' WORK.

MISS K. F. MCINTOSH, BRAMPTON.

We have just a few minutes in which to speak to you of this feature of our work. Girlhood is the state of budding womanhood—"Standing with reluctant feet where the brook and river meet." We are beginning to realize these days the importance of woman's work; she has come more prominently to the front, during the war, than ever before. That high sense of honor which has existed among good men is being introduced to a greater extent among women. We must eliminate the little, mean, petty things that have sometimes characterized women, especially, in work among girls, must this be so. Set such high ideals before them that they will be big enough to overlook such things.

This is a day of organization. We should get the girls interested in organizations that count, teaching them that the highest thing in the world is love and service. We have realized that more than ever before during the last four years. Having the girls realize that, they learn that the highest service they can render is for home and country.

Young womanhood has the joy of youth and we need to incorporate this in our older organizations. Let the older women catch the joy of living and the beauty of life girls can bring to the Institute by the influence of contact. We are part

of all we've met and known. The call of normal womanhood is for home and motherhood. For so many of us now that can never be; our dreams are different now. It is not just from the fact that our men have been taken away, our dreams have gone with them. We must counteract that by helping the girls to work for others, to realize that only in service is the balm that can heal. Service is simply love in action. To give ourselves to universal motherhood is after all only the giving of ourselves to others in numbers, where we would, under other conditions, have given ourselves to the few in a home life.

Perhaps you would allow me to speak of some work we have been doing in Peel County. Through the effort of the late Mr. J. W. Stark, of Brampton, Home Demonstration work was begun last April. Although some 1,550 demonstrators are working in the States, this is the first time it was ever tried out in Canada. The idea standing back of it was to have a woman representative who would render to women, girls and children the same service to be rendered by the Agricultural Representative to men and boys. Previously, Demonstration Short Courses had been held throughout the county and during each, a Junior Women's Institute was organized. A great deal of our effort was directed to the girls. We have now five Junior Women's Institutes and a Girls' Club, one just recently organized. Last summer we organized a Canning Team in each Junior organization. Four girls in each team were trained in different methods of canning and at the County Fair a Canning Competition was held in the Department of Agriculture tent, the five teams competing closely. A practice had been held with the instructor each one of the seven weeks preceding, some of the teams meeting oftener. We can safely say, thousands of people visited the tent that day at Brampton. The idea standing back of it was education and conservation. One would be surprised to find out how few women do canning. Preserving is an ancient art, but canning, especially of vegetables, had scarcely entered the minds of a great number. By getting the girls enthusiastic over it, the women became enthusiastic. At the Competition many questions were asked, the influence spreading to each one with whom the girls came in contact. Short Courses have been carried on most successfully under the auspices of either Women's or Junior Institutes. Mr. Putnam and Miss Sutherland have been exceedingly good to us in the matter of giving instructors and we wish to thank them for it. Already this year, we have completed one in Home Nursing and First Aid, one in Food Values and Cooking. Two others in Home Nursing and First Aid are arranged for to begin next Monday. Full preparations were made for a Physical Culture Course, but it was postponed indefinitely on account of the influenza epidemic. Just here, I should like to urge all to take advantage of Short Courses offered by the Department.

One other effective means of reaching the girl is through mothers' classes. Patterns for making of infants' layettes were loaned by the Provincial Board of Health. A common laundry basket was prepared to serve as the only cradle a baby needs. Garments were all simple and could be made by any mother. The child is our greatest asset. By interesting the girl in the child—she is interested—by teaching her the proper care of the child in every detail, the value of this work goes ringing down the ages, one generation passing it on to the next. That our classes were interested was plainly evident, when every few days we were asked for patterns.

There are so many things we might tell, but we will only give you one little message from our Short Course at Palgrave. We ran Agricultural and Home

Economics classes concurrently for one month. Our work with the girls was most interesting, a most kindly spirit existing among the members. We decided to choose a class motto; several were suggested for discussion, but the one finally decided on, was "carry on." (Applause.)

Perhaps you will allow me to close with the little quotation we gave the Palgrave class as a closing message:

THE SALUTATION OF THE DAWN FROM THE SANSKRIT.

For yesterday is but a dream,
And to-morrow is only a vision.
To-day alone is ours;
But each to-day well lived
Makes every yesterday a dream of happiness,
And each to-morrow a vision of hope,
Live well this day,
Such is the salutation of the Dawn.

HOUSING PROBLEM.

PROF. C. B. SISSONS, SECRETARY, ONTARIO HOUSING COMMITTEE, TORONTO.

The question of housing is a very broad question indeed, and I am not going to endeavor this morning to discuss the question in all its phases. I am going to confine myself pretty largely to some problems which arise, and some suggestions which may be made, in connection with housing in the country—rural housing.

First of all, I would like to suggest that for the purpose of our discussion, a distinction should be made between the word "house" and the word "home." Personally, I am much less interested in houses than in homes. The important thing is not to build houses; the important thing is to make proper and helpful home conditions a possibility in this country, both in the rural parts and in the urban parts.

A house may be merely a shelter. What is perhaps even worse than that, a house may be merely a dreary workshop. A home is something more than a shelter, something more than a dreary workshop. It is a place where work and leisure are combined in due and just proportions. I am not sure that a great amount of leisure is greatly to be desired; I am convinced that while leisure is very important for the housewife, it is even more important that she have plenty of work to do. The home should be a place where work is done—done in the most pleasant and agreeable surroundings, but done somewhat continuously. In addition to pleasant facilities for work, you should also have facilities for leisure for the enjoyment of the spare hours of life. And it is with that in view, with the idea of the home rather than the house, that we approach the housing problem in rural Ontario.

I wish to say a word with regard to what the Ontario Housing Committee, of which I happen to be Secretary, has undertaken to do in connection with rural housing. Before arriving at any conclusion, we thought it necessary to find out other people's views on this matter. We sent a circular to the Agricultural Representatives in the various counties and districts of the Province. The circular asked them to estimate the proportion of farms which had satisfactory cottages for hired help, and, also, to make suggestions as to the best means of

encouraging the building of houses for hired help, or any other suggestions which they might care to offer.

The Ontario Housing Committee is particularly concerned in the cities with what is known as industrial housing, and the counterpart of that in the country is the farm laborer's cottage. We received replies from all, or practically all, of the agricultural representatives, and these replies were most interesting. They showed that the greatest difficulty existed as to the extent to which laborer's cottages were used in various parts of Ontario. In a district like Algoma you would not expect any, but the representative from there, stated, he knew of two men who had cottages or houses for their hired man. In the County of Bruce, which has sent so many settlers to Western Canada, there are very few cottages for hired help. In Dundas, on the other hand, you will find about 7.5 per cent. of the farms have cottages, according to a survey made by the Commission on Conservation. In Dufferin, there are very few cottages, but in Northumberland there are a great many. The Agricultural Representative of Northumberland County was very energetic, and he undertook to make a little survey of one of the southern townships of the county, namely, Murray Township, and he found there were no less than 159 farms out of 826 which had a second house for hired help in that township.

In Prince Edward County, which probably holds the record of all the counties, there are some 25 per cent. of the farms that have cottages for their hired help.

In Simcoe, the county of which I happen to be a native, I am sorry to say there are not very many farmers who have cottages for their hired man. The thing varies a great deal in different parts of the Province, and I should like to have the time and opportunity of trying to discover just why the situation does vary so much.

I should like to read one or two extracts from the letters received from the Agricultural Representatives, without mentioning any names.

One man says: "I am glad to know by your letter that an effort is being made to assist in the building of tenant houses on the farm. This is one of the greatest needs in this country towards solving the labor problem. Any man, who has a house for his hired help, has experienced little difficulty in securing help, while the farmers depending on single men have a great deal of difficulty in securing reliable men."

Another representative states: "Farming would be a much more attractive vocation if the rewards obtained from it were sufficient to warrant the farmer in employing help to do the greater part of the actual work, permitting him to give his time to the supervision of his farm and looking after the business incidental to it, adding his own labor at those seasons when the rush of work is greatest; in other words, employing by the year such help as can be kept in constant employment during the day, and every work day of the 12 months. Unfortunately, experience has taught us, that the average farmer, beginning his operations with limited capital, finds, to be successful, he must perform with his own hands all the work he possibly can, calling to his assistance employed help only at those seasons when he is unable to do all of it himself. Under these conditions the farmer has labored from early until late, giving a regrettably small amount of time or thought to planning or the supervision of his own business affairs. He has employed help for limited periods only, and for that reason has preferred unmarried men, in that they can be taken into employment for short periods without the inconvenience incidental to employing married men. In a great

many cases, the farmer's wife is willing and anxious to assist towards the end of a satisfactory financial balance in the farm affairs, even to the extent of foregoing her personal preference and convenience in the matter of having a man board in the house."

"It is regrettable, and yet, I know of no single farm in Ontario which is carried on as a business enterprise with a paid manager and paid labor which is returning satisfactory dividends, excepting, those farms, which are making a specialty of choice and exceedingly high priced live stock or such commodities that are not sold on the consumers' market, but to stock breeders. Profits from farms obtained in this way are not indicative of profits on the ordinary farm."

That is a very interesting discussion on the whole point.

In addition to sending circulars to the agricultural representatives, we sent a number of letters to farmers whom we were informed had cottages for hired men, and we asked them a number of questions. Here are some of the questions we asked:

1. The effect on the securing of satisfactory labor by having a comfortable house for farm help.
2. The number of rooms which such a house should contain.
3. The practicability of installing in such house, modern conveniences which usually are enjoyed by city laborers.
4. The advisability of having the house on the farm rather than in a neighboring village or at the cross roads.
5. The size of farm which could afford to maintain a house for hired help.
6. The attitude of the farmer's wife on the question.

We received a number of most interesting replies, which I will endeavour to sum up. In regard to the first question, all the farmers who answered, except two, were quite definite in their statement on that point. Two did not think it made much difference whether you had a cottage or not in these days, but the rest said that the having of a cottage was undoubtedly of great assistance in securing a desirable supply of labor for the farm. I do not know whether this would have been the opinion of those who did not reply, but at any rate they all had a chance to state their view.

In regard to the number of rooms which such a house should contain, there was a great difference of opinion, but the general view seemed to be that the number of rooms should not be great. I am just going to digress on this point, to state, that I think the same thing is true of the farmer's house, that the number of rooms in our farm houses is frequently much too great. All over this country there are houses which are being built, for some reason or other, too large for comfortable and convenient housekeeping. (Applause.)

There is a great deal to be said for a fairly small and compact house. A great many people thought these cottages should not be too large—five or six rooms would be about the average opinion of the size.

On the practicability of installing modern conveniences, of course, I knew what answer would come to that question, that it was not practicable; that the laborer's cottage should not have more conveniences than the farmers had themselves, and very few farmers found it possible to install modern conveniences. I am going to prophesy, that within the next few years you will see, throughout the farm houses of this Province, a pretty general installation of modern conveniences. (Applause.) There is no reason why they should not be installed in the farm houses, and if they are installed in the farm houses, in some cases it will be possible to have them in the cottages.

On the fourth question, as to the advisability of having the house on the farm, rather than in a neighbouring village, or at the cross roads, the opinions were, with one exception, unanimous that the laborer's cottage should be on the farm near his work. The one exception was from a man I know very well, and he said that it was an open question. I talked with a good many more men than answered the letters, and I had one or two tell me in conversation, that there were sometimes domestic incidents on the farm concerned with children and chickens and such things which really made out a case, to a certain extent, for having the house off the farm and at the cross roads. (Applause.) But no doubt in the case of a stock farm it is necessary that the laborer's cottage should be on the farm or convenient to it.

The question with regard to the size of farm which could afford to maintain a house for hired help was rather foolish in some ways, because the productivity of farms under different styles of cultivation varies so greatly, but I wanted to get the opinion of the farmers as to whether a 100 acre farm was large enough to make desirable the building of a laborer's cottage. I was inclined to think a 100 acre farm was rather small, that perhaps 150 acres would be nearer the size for a laborer's cottage, but I was surprised at the number of farmers who said a 100 acre ordinary mixed farm was quite large enough to maintain the two houses. Some said 150 acres, and some pointed out, that on a fruit farm, you could support the two houses with much less than 100 acres.

The attitude of the farmer's wife to the question—you will be curious to know what answers came in to that. There was an absolute unanimity on this point, that from the standpoint of the farmer's wife it was highly desirable that laborers should be housed in a separate house. Of course, as the District Representative pointed out in the letter I have read, there are many women who are prepared to go to the inconvenience of boarding a hired man in order to help out with the revenue of the farm, and I feel sure it is still necessary in many cases to have a single man on many farms, and consequently, we should not urge on every farm that a laborer's cottage should be built.

But the evidence to hand is, that the number of laborer's cottages might be increased in rural Ontario with great advantage to agriculture.

I have just three suggestions to make for your consideration: first, that the farm house can be made more like a home if it is made somewhat smaller than has been the practice in certain districts. Many of our houses are too much like barracks. I recall how our own house on the farm in North Simcoe was burned down, and how, for two or three months, we had to live in a cottage which, even at that time, my father had built for his hired man. We three children and my parents lived in that four-roomed cottage, and I do not recall any healthier or happier time in my whole childhood.

The second suggestion is the installing of modern conveniences wherever it is possible.

And third, getting rid of the hired help in the home and building laborer's cottages wherever it is financially possible to do so. The farmer should decide as to whether it is better for him to make a little more money and board his hired help, or to make a little less money and build a cottage for his hired help; and I think if he faces that problem squarely and has the assistance of his wife in solving it, he will quite frequently arrive at the conclusion, that it is better to make a little less money, and to have a little more comfort, than to make a little more money and have a little less comfort by having the hired help in the home.

I am just going to leave one problem with you, and that is the question: whether the supplying of cottages naturally precedes the securing of satisfactory help, or whether the making available of satisfactory help naturally precedes the building of cottages.

MRS. BRETHOUR: I have lived on a stock farm for nearly 25 years. We started with one hired boy, then a man, and then a boy and a man, and then with three men the year around, and with nine or ten or eleven in the fall, and we really felt our life was hardly worth living and our home was not our own. So we started with one cottage and secured a very good man, one we had had in the house for five years, and afterwards for four years in the cottage. Then we built another cottage. It takes money to build these, but if people do without fur coats and automobiles, you can have them. Since we have had the cottages we really have had very little trouble in getting good hired men.

FINANCING THE DISTRICT.

MRS. HOBBERLIN, PORT CREDIT.

INTRODUCTION: The subject of "Financing the Institute" is of special interest to a district auditor. The financial phase might be dealt with under four divisions:

1. Federal.—For we hope for a national organization which will need funds.
2. Provincial.—Which organization we are expecting in this Convention.
3. District.—Which is managing to carry on with very limited funds.
4. Branch.—Which owing to the very meagre grant of \$3 has to be carried on by voluntary effort, the need for which has proved to be one of the chief factors in developing local initiative.

The division I have chosen for financial consideration in my limited time, is the district.

ILLUSTRATION: There is no means of co-ordinating the sub-sections of any district more potent than working together to raise funds for a common object. We found this truth substantially verified in Peel County last spring, when we resolved at our County Convention to work, as a unit, for the Navy. We decided to hold a Garden Fete, and an analysis of our methods may be of some help to others.

Having first been unanimous in the objective, our next step was the assembling of the district officers at a round-table luncheon held at my house, for a two-fold purpose: first, of acquainting the workers with the possibility of our grounds, and secondly, of further rousing their zeal by the enthusiasm and personal experience of selected speakers.

Organization was then immediately proceeded with, while emotion and ardor for work ran high, which made the formation of sub-committees a comparatively easy matter. One very important point to note is the need of appointing suitable heads of departments, and especially a suitable chief. The head of the organization must always be on call to her sub-heads, with help or encouragement as the case may require, always tactful, helpful and resourceful.

Possibly the most important of the sub-committees, is that of *Publicity*, which has the great work of "Noising the event broadcast" throughout all the surrounding districts. This we did by sending attractive, large display posters, and small

dodgers, and some very distinctive motor cards, to all the towns and villages of our own county, and many to nearby counties as well. We also had small notices and large displays in our various newspapers, and large streamers across the highway to attract the general attention. But the greatest of all ways of advertising is the early and strenuous selling of admission tickets by everyone. In connection with publicity, we must not overlook the issuing of a "Programme of Events," in which advertising space is sold to merchants, with great benefit to the merchant and considerable profit to the event.

THE REFRESHMENT COMMITTEE served a delicious high tea on the Cafeteria plan, which gives a prompt service with a minimum of time and labor, and eliminates waste. Of course, the usual refreshment booths were stationed at several convenient points in the grounds.

THE AMUSEMENT COMMITTEE provided many interesting events for old and young, men and women, boys and girls. Everyone was entertained and made happy, and the Fete made money in proportion.

One innovation which we found helpful was the *Cashier's Tent*. Here, we sold strips of 5 cent vouchers, which were used as cash at the different booths, and thus did away with the old worry of making change.

We cannot emphasize too much the wonderful co-operation we had from our men and the great help we received from them. Necessarily, women must engineer a women's event, but the greatest results are always obtained from a united effort. Our men were most generous of their time and energy, and were especially useful in the counting of the day's proceeds. It was no small task, as we took in about \$2,700 on the grounds, which we turned over to bank clerks, whom we escorted to the bank, and in this way, knew that our earnings were safe.

Our accounting was found almost accurate when checked by an auditor. This is always a wise procedure in the handling of public funds.

DECENTRALIZING OF FUNDS: Our total clear proceeds were a little better than \$3,000, but the whole amount had necessarily to be turned over to its original destination—the Navy, which left our district funds no richer than before. Is the time not ripe now, for some slight decentralizing of Institute funds? Should not each district have placed at its disposal a small percentage of the central funds, possibly in proportion to its membership, which would decidedly make for a higher efficiency in the district work, by making it possible for district presidents to tour their territory and co-ordinate their branches? Under the present order, unless the President uses her personal funds, she must do some of the county business by correspondence, which is very far from being effective, and sometimes a highly suitable woman is prevented from holding office through lack of funds.

SUGGESTIONS: I would like to make some suggestions for definite propaganda which might be taken up with some profit.

1. We might have life members in the district—interest only to be used.
2. We might have a government bonus to the district.
3. I have heard it mentioned that some alternative use of the funds used to send out a speaker to the June meetings might be allowed, where a speaker is not desired, perhaps on account of not being able to get suitably attended meetings.
4. It is well-known that many co-operative district enterprises are starved for lack of funds. As the country fills up, the future development of rural community life will depend, to a great extent, on the activities of the W. I. districts, which can only work out their objects by having district funds substantially augmented from the Government appropriations available.

CONCLUSION: Surely if these last four years have demonstrated anything, they have shown conclusively that the rural women of Ontario are eminently capable of administering any moneys entrusted to them.

AFTERNOON SESSION.—FEBRUARY 5th.

MRS. G. T. WOOD occupied the Chair.

THE CHAIRMAN: I bring the greetings from North Brant Institute. Before proceeding with the programme this afternoon, there is one thought that I would like to leave with the delegates, and that is—BE KIND. I think it is Ella Wheeler Wilcox who says:

So many gods,
So many creeds,
So many ways that wind and wind,
When just the art of being kind
Is all this sad world needs.

Those of you who observe at all closely, know, that it is not so many things that count in life that makes it a success; it is not being able to make a grand speech, or being able to write a book, but it is the quality of our daily life. And we, in the Institute, must keep high ideals before us and before the other members.

As you go along the way, question not but love and labour,
Until the goal is won, help every needy neighbour,
Seeking help from none.
Life is mostly froth and bubble,
Two things shine out like the sun,
Kindness in another's trouble, courage in your own.

HOW THE PRINCE EDWARD COUNTY DISTRICT INSTITUTE HOLDS ITS ANNUAL MEETING.

MRS. W. R. MUNRO, DISTRICT SECRETARY.

Early in April we mail notices to the District President, Vice-President, Secretary-Treasurer, and District Director for each Branch with the statement—"A meeting will be held to plan our District Annual Conference to be held in June. Please attend or send a substitute to report to your Branch."

We meet—decide on a Saturday always; choose a date; a centrally located place to meet; to hold two sessions—one business session at 10 o'clock, and programme and public session at 2 p.m. We arrange for luncheon, either given by the local Institute where meeting is held, or with some patriotic sister society to serve us at a nominal fee. We appoint a programme committee to secure one speaker for a good address on a practical topic, and ask each branch to provide one item,—music, reading, report of some really good work or some new phase of work taken by them. Thus the programme is taken care of. Sometimes we get out printed programmes. We advertise our meeting thoroughly by branches and in local papers.

Some afternoon speakers and subjects:—

DR. LIGHTHALL: "Preparedness."

LAWYER YOUNG: "Parliamentary Rules for Institutes."

INSPECTOR BENSON: "Co-operation with the Schools." The day comes and the morning session is the really important one for Institute members. We officers emphasize punctuality and promptness in order to get a great amount of work done in a little time. Ever since taking the office of District Secretary I have tried to prepare fully for it, and have worked out a good plan with my reports. Our President, Mrs. W. R. Browne, follows this order:—

- 1—President's address.
- 2—Reading minutes.
- 3—Presenting and reading petitions.
- 4—Reading communications.
- 5—Reading reports of committees.
- 6—Secretary's report.
- 7—Unfinished business.

We take up all business in its regular order, unless by a majority vote it is willed otherwise.

8. Questions answered on year's work, then the work is completed by the Secretary calling the *Roll*.

This I worked out myself and it answers its purpose well—I have a sheet ruled and filled in correctly under the following heads:—

Name of Institute	Membership	No. of Votes	Name of President	Name of Secretary	Name of District Director	Other Representatives 1, 2, 3, 4, 5
Picton....	61	5	Mrs. Killop	Mrs. North	Mrs. Smith	Mrs. Clapp Mrs. Collier

From this, the President reads the District Directors' names and they are duly elected by the Convention, and thus by this we know:

- 1. Those entitled to vote; if their fees are paid in.
- 2. The number of votes cast—we declare that the majority vote elects.

The number of votes each candidate receives is never read out by our scrutineers. The President and Secretary vacate the chairs, and the representatives proceed to nominate a President and Secretary (pro-tem) and scrutineers (not voters). Officers are elected in a business-like way, and the new President assumes her office, makes a few remarks and we adjourn promptly at 12 o'clock, as our programme states—10 to 12 o'clock.

Officers we elect are President, First Vice-President, Second Vice-President, Secretary-Treasurer and 2 Auditors from Roll, not District Directors.

Luncheon—12 until 2 o'clock.

Then the programme session is opened by the President elect. Fortunately for us we have been able to keep our Presidents for a number of years, especially while so much war work was on.

Any unfinished business is taken up. Questions are submitted by members and answered.

Our afternoon speaker is given half an hour, and then the other items from the Branches are given. We get good results from letting each Branch give what it thinks best,—readings, recitations, reports, music, etc. We appreciate and derive great benefit from our district annual meeting.

PRINCE EDWARD COUNTY 1918 REPORT—MAY 31st.

Members	786
Meetings (not counting Red Cross meetings attendance)	140
Attendance (not counting Red Cross meetings attendance)	2,994
Papers	113
Red Cross meetings	340
Receipts	\$10,100 72
Red Cross receipts	9,786 17
Socks sent	9,811 pairs
Goods valued at \$6,408.15 sent overseas.	

And this year's report will be much more when the Reports come in in May, as membership, cash, and work have increased very much.

ORDER OF BUSINESS.

- 1st—President's address.
- 2nd—Reading minutes.
- 3rd—Presenting and reading petitions.
- 4th—Reading communications.
- 5th—Reading reports of committees.
- 6th—Unfinished business.
- 7th—New business.

All business shall be taken up in its regular order, unless by a majority vote it is willed otherwise.

STANDING RULES.

That in all proceedings in the meeting, the following rules and regulations shall be observed:

1. The members of the meeting shall not leave their places on adjournment, until the President, or other presiding officer, leaves the chair.
2. That the President and the Chairman shall preserve order and decorum, and decide questions of order—subject to an appeal to the members.
3. That every member, previous to her speaking on any question or motion, shall rise from her seat and address herself to the President or Chairman.
4. That every member, who shall be present when any motion is put, shall vote thereon, unless she be interested in a pecuniary way.
5. That no member shall speak beside the question in debate, nor shall she use unseemly, unmannerly, or indecent language against the proceedings of the meeting, or against any member thereof.
6. That in the proceedings in the meeting (as well when the President or presiding officer is in the chair as in the committee of the whole) every amendment submitted shall be decided upon or withdrawn before the main question is put to vote. Only one amendment shall be allowed to be an amendment, and any amendment more than the one must be to the main question.
7. That when two or more members shall rise at the same time, the President or presiding officer shall name the member who shall speak first—subject to an appeal to the members present.
8. That a member called to order shall sit down until the question of order is decided by the President or presiding officer.
9. That no member, except the mover (who shall be permitted to reply) shall speak more than twice on the same question without leave of the members present.
10. That whenever it shall be moved and carried that the members go into committee of the whole, the President or presiding officer shall leave the chair and appoint a chairman, who shall appoint a secretary to report the proceedings of the committee. The rules of the association shall be observed, except the rule relating to limiting the number of times of speaking.
11. That the motion in committee of the whole to rise and report the question shall always be in order, and decided without debate.
12. That no motion, except for an adjournment, or reception of reports and petitions, shall be debated, or put, unless the same be seconded. And every such motion

must be read by the member standing in her place, and then put by the President or other presiding officer when it shall be deemed to be in possession of the meeting, but may be withdrawn at any time before amendment or final putting by consent of the members present.

13. That when a question is under debate no motion shall be received unless—

- 1st—To amend.
- 2nd—To lay on the table.
- 3rd—To postpone.
- 4th—To adjourn.

14. That the previous question, until it is decided, shall preclude all amendments and debate of the main question, and shall be put in the following words:—Shall the main question be now put?

15. That after any question is finally put by the President or presiding officer, no member shall speak to the question, nor shall any other motion be made until after the result is declared; and the decision of the President or presiding officer, as to whether the question has been finally put, shall be conclusive.

16. That no member shall speak to any motion until it is put by the President or other presiding officer, except the introducer.

17. That a motion to adjourn shall always be in order, except—

- 1st—When a member is in possession of the floor.
- 2nd—When the yeas and nays are being called.
- 3rd—When the members are voting.
- 4th—When the adjournment was the last preceding motion.
- 5th—When it has been decided to take up the previous question.

A motion to adjourn simply is not a debatable question, but a motion to adjourn to a given time may be and is open to debate.

18. That when a motion has once been made, and carried in the affirmative, or negative, it shall be in order for any member to move for a reconsideration, and if such motion is seconded it shall be open to debate and be disposed of by the members; and in case the motion be made at the same meeting, it shall be competent for a majority of the members present to pass a vote for reconsideration; but if it be not made until next meeting, the subject shall not be reconsidered unless a majority of the whole members shall vote therefor; but no more than one motion for reconsideration of any vote shall be permitted.

19. That a mover of resolution bearing upon the work of a committee shall be a member thereof.

20. That every member may by right require the question or motion under discussion to be read for her information at any time.

21. That should any case occur for which no special rule is made, that reference shall be had to Parliamentary proceedings as far as such may apply.

ORDER OF PROCEEDINGS IN COMMITTEE OF THE WHOLE.

1. Whenever it shall be moved and carried that the members go into committee of the whole, the President or other presiding officer shall leave the chair, and shall appoint a chairman of the committee of the whole, who shall maintain order in the committee and who shall report the proceedings of the committee.

2. The rules of the association shall be observed in committee of the whole, as far as may be applicable, except that no motion shall require to be seconded, and in taking the yeas and nays the names of the members shall not be recorded, nor shall the number of times of speaking on any question be limited.

3. On motion in committee of the whole to rise and report, the question shall be decided without debate.

4. A motion in committee of the whole to rise without reporting, or that the chairman leave the chair, shall always be in order and shall take precedence of any other motion. On such motion, debate should be allowed, and on an affirmative vote, the subject referred to the committee of the whole shall be considered as disposed of in the negative, and the President or other presiding officer shall resume the chair and proceed with other business.

ADDRESS.

MISS SAUNDERS, YOUNG WOMEN'S CHRISTIAN ASSOCIATION, TORONTO.

I bring you greetings from the Dominion Council of the Young Women's Christian Association. There are two points on which I would like an opportunity of saying a word to you. One is, thanks to the many Women's Institutes in Ontario for the help you gave us last summer, and the summer before, when we had charge of the housing of the girls who went to work on the land. Some of you have had all sorts of experiences with the girls who came to work on the land, and you know we had our experience in trying to look after the housing of them. We had 28 camps established to help the Government by placing the women on the land, and if it had not been for the kindness of the farmers' wives and daughters and others who helped us in every way, I do not know where we should have been in carrying on this supervision.

The second point that I want to speak about this afternoon, is something that should have followed your discussion this morning on Girls' Work. What I have to say will be of interest to a large number of women interested in the girls living on the land, and I want your co-operation in making it known, and to turn to us, if there are any ways in which we can help you. We all desire to make the best womanhood we possibly can for Canada. You are helping to make it in the Women's Institutes. We hope we are helping also in the Young Women's Christian Association.

During the last three or four years, we have been endeavouring to bring about co-operative work for bringing before the girls of this country higher standards of living, and ways by which they may attain to these standards. We are working side by side with the boys' work which may be known to many of you as the Canadian Standard Efficiency Test. We have been trying to get this four-fold development for the girls which would help them to have some goal of living to which to attain, and we hope will arouse the same enthusiasm among the girls that we now have among the boys. We have called it, "Canadian Girls in Training"—in training for the best kind of womanhood we can possibly have in this land, and we want your help in this as mothers, Women's Institute workers, club leaders, Sunday school teachers and others. We are working with the four great Protestant denominations: the Presbyterians, Methodists, Anglicans and Baptists, and together, we have drawn up this programme and published a pamphlet, entitled "Canadian Girls in Training," which places before class leaders and Sunday school teachers and others, ways by which they can help the girls get this vision of what their girlhood can mean.

We hold up a four-fold life. Every girl who wants to be her best must be developed along physical, intellectual, religious, and social lines. We come to the girl with this programme, and suggest to her to think through her life and see how many of these different things she has got. Under the physical standard, we have the question of health education, first aid and home nursing—how to help others, and physical culture of all kinds,—sports, team and group games, because there is no better character training than out-door life.

Under the intellectual life, we have school and vocational training, home craft, nature study, music, art, educational trips and lectures and hobbies, such as photography and gardening for town girls, and various things that give them an added interest in life.

Under religion, we emphasize the need of daily prayer and Bible study, systematic giving, mission study and reading, and various things that a girl should try to weave into her life.

Under service, or social life, we have worked it out in rather a different line from the other three. Around the girl is the home, that is the first cycle; then the next is the church, and after that, the whole community of people she meets. We want the girl to think out her relationships of service to others along these different ever-widening lines,—what her contribution may be in her community.

Perhaps you will say, "That is all very well to put before the girl, but is it not almost depressing to have such standards put before you and find you cannot attain to them?" So we come to her with something practicable, and ask her, "Do you belong to some Sunday school group, or some club? Could not you as a club, so plan your meetings for next winter, that gradually you will weave in some of the different things you have not yet had?" Therefore we have drawn up a series of club programmes in our pamphlet.

HEALTH CONSERVATION.

DR. MARGARET PATTERSON, TORONTO.

"Talk Health. The dreary, never-changing tale of mortal maladies is worn and stale. You cannot charm or interest or please by harping on that minor chord—Disease." Too long we have harped on this chord, and it has taken a war with its tremendous loss of life to teach us the value of human life, or to cause us to realize how careless and wasteful of life we, as a nation, are. When the figures were given out that the deaths due to the war in 1915 reached 1,000,000 we were appalled, but during that same time more than a million people died of tuberculosis. Who can say but that the sufferings from tuberculosis were infinitely more than of those killed on the battlefield? At its worst, war is a temporary thing, but tuberculosis will go on and on, until we awake from our indifference and realize our responsibility, and do our bit to wipe out this foe of mankind. We have realized that war is unnecessary. We know that most of the infectious diseases from which we suffer are unnecessary. Then, why not determine that they, too, shall cease. As the men in France said of the Germans, "They shall not pass," so we, women of Ontario, must say to these diseases, "They shall not continue," and this is our work. The health of the nation is in the hands of its women. We must either do our bit or shirk. We do not belong to a race that shirks, so we must plan our campaign. We must locate these foes that are every year killing thousands of our Canadian born babies and depriving us all of an average fifteen years of life. We must find out where they live—their source of supply, and then cut them off. To do this, we must have education—along the natural laws governing health, and the consequences of breaking these laws. We must have general education along health lines. "Know the truth and the truth will make you free." It is estimated that the economic loss alone in the United States, each year, from unnecessary and preventable diseases, is over a billion dollars. Our percentage in Canada is quite as high, but we have not yet thought enough of the value of human life to keep statistics regarding it. Medical men say, that if the present knowledge of hygiene and sanitation were applied in daily life, at least fifteen years would be added

to the present average length of life. Surely, there is something wrong, when one-third of all persons born, die before they are twenty-five years old. Surely, we are an extravagant people, and in nothing are we more wasteful than in human life and health. We have rightly been taught to conserve and we must continue to do so, for millions are still hungry, but our conservation has not gone far enough. We have stopped short of the best, but now the time is ripe for action. Among the good things which the war will bring us, as permanent to our national good, I think we may expect at least the following: An estimate of the value of the individual citizen; a better appreciation of the necessity for personal physical preparedness for the activities of peace, and good citizenship; better care of the health of the average citizen by the Government, and the providing of courses of instruction in hygiene and health matters in all our educational institutions and to citizens generally; universal physical training for both boys and girls, and more attention given to wholesome recreation, and provision made for sufficient play for both old and young to keep them normal; universal health inspection; the suppression of vice diseases, and a nation wide campaign against all unnecessary diseases. If the war accomplishes this, the result will be the saving, in a single decade, of more lives than have been lost upon the battle field, and our boys will not have died in vain.

When we talk of our great wealth in our natural resources, do not let us forget the value of sunshine and fresh air. That is our greatest source of true wealth—health. But we must learn how to use them. This is a day when efficiency is demanded. Let us learn to live efficiently—to eat properly—breathe properly, and obey God's laws of life. It is necessary that we should know how to care for the sick and for those who have met with an accident, but prevention is always better than cure.

THE BABIES—GOD BLESS THEM.

It is always a pleasure to talk when you have a worth while subject to talk about, and certainly we have the best and most important to-day. This war was fought for the baby—it was to preserve our country for the future of our race. This means the baby. No one can estimate the value of a baby; its possibilities are unlimited; any one of them may develop into a great statesman, a leader of men, and our country cannot afford to lose any of them. Our boys fought and died to save Canada for Canadians. We must fight disease, and learn to live in a sane, healthy way and save Canadians for Canada. The best citizens our country can ever have are its native born babies. We, as mothers, must realize the value of a baby to the country, and then we must make those in authority realize it. The Master Himself gave the men of that day some idea of the value of a child. "When they disputed among themselves as to who should be greatest, He took a child and set him in their midst." We must keep the child in the midst, the midst of our thoughts—our plans—our education. We have been so busy developing our country in trying to lay up wealth for our children that we have almost forgotten the child itself, and thousands of children who might have been good useful citizens, were allowed to perish, just because for these material things we forgot the child in our midst, and many others survived, only to be a part of what they might have been. We should ask the reason why so many of our men were found physically unfit for military service, and having discovered the cause, let us see that it is removed. Surely, parenthood is the most noble privilege given to human beings. It is a partnership with God. Surely, we should teach our

boys and girls to regard it as a sacred trust and to fit themselves for it. Of all the duties that fall to the lot of woman, the care and proper rearing of children is the most important. Of all professions open to women, motherhood is second to none. Yet it is to-day but an unskilled profession. The price of ignorance in this is suffering, disease and death. It is estimated that thousands of babies die yearly from preventable diseases and lack of proper care. Is it not time to make the care of babies a part of our educational programme? It is often said that the care of the baby must begin with the grandparents. We are the grandparents of the future. We will begin with ourselves here and now. In order to live efficiently we must have healthful surroundings; we must have proper houses, and we must keep them ventilated. No one can be healthy without fresh air. Out of every 100 babies that die, 23 die from impure air; 37 die from diseases of the digestive tract,—all of these preventible, most of them caused by some unsanitary condition in or near the home. The housefly kills more babies every year than the German submarines could ever do. Make war on the fly. Change that little nursery rhyme thus:—

“Baby bye, here’s a fly,
Let us swat him, you and I.”

The fly is a source of waste that we must do away with. A systematic, united campaign against flies, properly carried out for one year, would rid us of this nuisance, and save to our country, every year, hundreds of lives, and thousands of dollars that are now being spent on the care of diseases caused by flies.

We must see that the source of the milk and water supply is safe and sanitary; that there are enough open spaces and playgrounds in our towns and cities, and that all over the country there is provision made for healthy play for both old and young. Human beings cannot be normal or the best citizens without play. When every community has its play grounds and people play together, there will be fewer misunderstandings, and the grouches that have been on file for years will be forgotten, and a spirit of good fellowship will prevail. When people learn to play together, then they will work together for the general betterment of the community. The waste places that are now covered with filth and rubbish will be cleaned up and literally made to blossom as the rose, and instead of being a source of danger will become a beauty spot. We often wrongfully accuse the Government of being indifferent to human life and health. Who comprise the Government—just certain ones selected from among US—sent there by US, to represent US, and our interests, and just as soon as we show them that we are more interested in the health of human beings than of stock, they will be ready to furnish us help in the lives where it is needed. The Government did a great deal to stamp out “Foot and Mouth Disease” in animals, but we are only beginning to realize, that there is a great deal of “Foot and Mouth Disease” among human beings, and they must begin to show the danger of neglected teeth and unclean mouths. Show, by means of motion pictures and literature, the vast loss of physical power, general efficiency and health, that is due to the crippling and deforming of the human foot, that is so common to-day with both sexes, as a result of the monstrosity known as a fashionable shoe. A mother would feel badly if her baby were born with only one toe and that in the middle of her foot, and yet, would she not be better suited to the fashionable pointed toe than the child with five toes?

HOME MEDICINE CABINET.

Bandages—Triangular, rolled.

Pieces of old linen or gauze.

Wrap a bandage and a few pieces of old linen in white paper and seal up, then in three thicknesses of brown paper, and bake in the oven until the outer paper has perished. Do not undo the white paper but pack in the medicine cabinet. A needle and thread, and a few safety pins. A strong tape or bandage.

In glass corked bottles get:—

Iodine.—A small bottle of tincture of iodine. Put tincture of iodine in any cut or open wound. It is the best disinfectant for wounds, or to paint on any painful or swollen part.

Carbolic Acid.—To make solution add one teaspoonful to a pint of water. The carbolic acid sol. is most useful as a disinfectant in vessels to receive the discharges from a sick patient; to wash infected wounds with, or as a disinfectant for instruments and bed linen. Carbolic acid should never be used to apply as a wet dressing and bandaged on.

Aromatic Spirits of Ammonia.—A half to one teaspoonful of aromatic spirits of ammonia in half a glass of water makes a safe and quick heart stimulant.

Sweet Spirits of Nitre.—A teaspoonful in a large cup of hot water taken on going to bed will often break up a cold or avoid the ill effects of a chill.

Essence of Jamaica Ginger.—Twenty drops in a glass of hot milk to restore warmth following exposure to cold, or a chill, or after being in the water.

Olive Oil.—Apply as a dressing for burns, or taken internally, to tone up the nervous system or to cure constipation.

Castor Oil.—A good dressing for burns. A soothing thing to drop in an irritated eye on going to bed. A cure for diarrhoea or dysentery, but should never be used for constipation.

Boric Acid Powder.—Make solution by adding one teaspoonful of the powder to a cup of hot water. This makes an excellent eye wash, and is a very good solution to use in wet dressings on wounds, or as an application or wash in dressing burns.

Soda Bicarb.—(Baking Soda) to use in case of acute indigestion, burns by acids, or to add to warm water to immerse a burned part in while dressings are being prepared.

A tube of vaseline.

ADDRESS.

DR. HELEN MACMURCHY, TORONTO.

This is an era of reconstruction, but this generation will not finish the work of reconstruction; we can only lay the foundation for it and provide the materials for it, and our great contribution to the era of reconstruction will be, to bring up the generation to an inheritance of a new and better world, which has been purchased for us by the sacrifice of those who gave everything, even to their lives, for the peace and justice and the freedom of the world. The war was fought for the children. Our loss in the battlefields, in round numbers, was 50,000 Canadian lives—a great loss for this generation. How many babies were lost

during the same period? An estimate, founded on the figures that we have been able to procure, shows a loss of about 20,000 a year; the war lasted four years and four months, so you will see that our loss in infant mortality is something like eighty or ninety thousand. Our loss in the battle field, great as it was, was not as great as that. The baby is our only means of replacing the loss in the war. You remember how Rupert Brooks puts it: "Their sons—they gave their immortality." Yes, those Canadian boys that died from 18 to 22 years of age gave, not only their lives, but their children that would have been born.

Dr. MacMurchy asked that two or three representatives of the Institute be selected to appear before Justice Hodgins, who has been appointed a Royal Commissioner to investigate the subject of venereal diseases and mental defectives. Mrs. Wm. Todd, Orillia; Mrs. B. O. Allen, Fort William; and Dr. Mary Mackenzie-Smith appeared before the Commissioner and gave information of much value regarding existing conditions in rural districts.

ADDRESS.

MRS. W. E. SANFORD, PRESIDENT OF THE NATIONAL COUNCIL OF WOMEN,
HAMILTON.

I esteem it a privilege to have this opportunity of looking into the faces of the dear members of the Women's Institutes of Ontario. I have the greatest respect and affection for the Women's Institutes. Near my country place in Muskoka, we have formed branches of the Women's Institutes, and to see the difference in the attitude of the dear women towards all the various larger affairs of life since these Institutes were formed, has been genuine pleasure and genuine profit. I had the pleasure of having eighty of them in my home last summer, and they have been an inspiration to me in my work. In Hamilton, we have a number of Institutes affiliated with our Local Branch of the Women's Council, and they always bring a fresh breeze and give us inspiration and help, and that is why I come to you, bringing to you the greetings of the National Council of Women of Canada, and to ask you to give us your help in all parts of Ontario. Come into the Local Councils of the cities or towns that are nearest to you for we need you. We want the inspiration that comes to you from that broad outlook which you have where you are in touch with nature all the time, and we ask you to come among us and help us, and then, perhaps, we can in return be able to give you some little help. We want to help each other. Have not we realized, during the years that have just gone, the need of co-operation? I trust such years will never come in the lives of any of us again, but I believe, we have been privileged to be in them, although they have come to us with tremendous pain and anguish of heart. Although we mothers and sisters and wives have suffered intensely, yet has not God granted to us the privilege which other ages of the world have not had, of knowing what it is to suffer and be strong—knowing what it is to give our very selves to the highest cause? Nothing ever is born without pain, and we realize that, because of this world agony through which we have passed, we ourselves have been promoted of God, to be workers together with God, in bringing about a peace which I trust will be a "Peace that passeth all understanding." That peace cannot come as a result of this victory, unless, in each of us is born that "Peace which passeth all understanding."

I was asked to speak at Fort William last week on reconstruction. It was on a Sunday evening. I said, "May I choose another subject—Consecration, because that is the foundation of reconstruction; personal consecration?" (Applause). We cannot take the mote out of our brother's or sister's eye if there is a beam in our own. It is the personal touch with the Infinite; the personal touch with the blessed Spirit of God upon every individual heart, which will make us fit to take up the tasks which God, in His wonderful kindness, is permitting us to perform.

We have been given the franchise; are you equal to it? Am I equal to it? God knows I am not, and I would ask each one of you to pray, "Make me equal by the indwelling of the Holy Spirit and by the constant contact of my heart with grace."

More than that, dear women, I come to you with a message that Christ may dwell in each one of us; He is ready to come and make His abode in us. This may seem a strange message to have brought, and why have I brought it? Because I have but one message. I am getting nearer the time when this life will be over. I see some gray-haired women before me, but very few. I am nearing the time when I cannot work any longer, but before that time comes I want my voice to reach the greatest number of women, to tell them the secret of victory and the secret of peace, and that is: the absolutely selfless life, the giving up of self to Him for Himself. Let Him fill our lives and guard us and guide our every action.

What kind of preparation are we making in our homes for our returned men? They are coming back with a brighter vision. They have stood face to face with the realities of the eternity. I was talking to two fine young chaps on the train going to Fort William, and they said, "We have seen things we cannot talk about. We have felt in that battle field that we were not alone, that there was a Presence with us that we never knew of before we left home." And these men were going to their homes. What kind of homes? Would they be just taken in as if they had never left, or is there a preparation in those homes to receive such a spirit back, to help them in the upward way, to keep their faces looking, as in the battlefield, into the Face of the White Comrade, and where they were not afraid to die because He was with them? And so, dear women, in each of our circles, let us take Him with us. The lonely farm woman can bring a blessing to our country and our boys; there is where we can get the victory over ourselves, it is on our knees before God. May God bless you.

Three minutes silent prayer followed this address.

THE CHAIRMAN: We come now to the Canning Centres in which we are all very much interested.

MR. PUTNAM: Just a word with regard to canning centres. You know that the Institutes have, during the period of the war, done a great deal to increase food production and have responded nobly to the appeal for conservation. It originated in the minds of some of the good people identified with the Institutes, that if we were to work in co-operation, and upon some systematic plan, we could save a great deal of the fruit and vegetables that otherwise would go to waste. We established the first canning centre at Parkhill a year ago last summer; it was such a success that we extended it to some 7 districts the past season. While we were sorry to have the plans for the canning centres interfered with, we were glad that it was the cessation of hostilities which did it. However, we believe that the community canning centre has great possibilities during peace times.

While the Department has a part to play in this great work, and without the Department many important features of your work could not have been carried on, I appreciate the fact that it is the capable women with their sincerity and resources which makes for the success of the Institute.

Mr. Culverhouse who is with us to-day had much to do with placing these canning centres upon a splendid working basis, and I have asked him to go into detail more thoroughly than I can.

CANNING CENTRES.

P. E. CULVERHOUSE, VINELAND.

The subject of community canning centres has been divided, I believe, on your programme into two parts—organization and equipment. The part of organization was given to Mrs. Wilson of Parkhill, and for fear that Mrs. Wilson may not have an opportunity of coming before you I shall just say a word about organization. In reality, it should be called re-organization, because a community canning centre has now taken a different place in the activities of the Institutes of the Province. In the past, community canning centres were almost entirely a patriotic move. They were supported through patriotic feelings, and their products were turned over to our military hospitals. The people who did the work in the community canning centres did not take home their products; they gave them, as I said, almost entirely to the wounded forces lying in hospitals abroad and at home.

I cannot go into detail regarding the organization of community canning centres. I have not come prepared to do so, and I do not intend to ramble over such an important subject, but I have given the subject of re-organization very careful attention. I have gone so far as to prepare a special constitution to be presented to delegates from the existing centres, and I am in hopes that that constitution will form the basis of a permanent and growing system of canning centres in the Province. We cannot predict what the movement will grow to. Mr. Putnam has suggested that it will involve other community activities, and after hearing the inspiring words of the previous speaker, I am sure that we have done well and wisely to choose the Women's Institutes of the Province of Ontario to put forward a movement which depends so entirely upon real co-operation.

It is impossible to speak about the equipment of a Community Canning Centre without saying a word about the purpose of a Canning Centre. All equipment must be for certain definite demands.

The idea of a Community Canning Centre, as the name implies, is to provide a centrally located outfit, carefully supervised by the people of the locality, economically operated, where every family within a radius of, say, ten miles may come to preserve all kinds of perishable food. The centre must be able to handle anything from strawberry jam to roast beef. Practically all the products go back to the homes of the people who produced the raw material. It is essentially an opportunity for people with cheap raw material. If, however, a canning centre produces a surplus, in order to prevent a waste of foods we have been given good assurances that such a surplus can be sold at a price covering *all costs*.

It has not been found very expensive to establish centres to meet all these requirements. In 1918, at top notch prices, this cost amounted to \$1,400, an average for six centres.

What then does this equipment consist of? Does it make the work of canning easier? Does it **make the work quicker?**

In starting in to do canning there are two main methods of applying heat and it is necessary to choose between these two. There is the direct heat from a fire, such as, coal, wood and oil stoves. The other method is to generate heat in a boiler and pipe it to vats, kettles and other cookers, in the form of steam. Steam heating is the method we have applied at the canning centres. We have done this because it makes canning both easier and quicker.

Think of the advantages you have in the use of steam:

1. There is but one fire to attend to. If you attempted to can an equal quantity per day by the use of oil stoves instead of by using one of our 12 h.p. boilers you would require about ten 4-burner stoves.

2. That suggests a saving in floor space.

3. Steam enables you to use the jacketed copper kettle. This big copper kettle brings water to a boil in two minutes and can complete a batch of jelly in from 7 to 15 minutes.

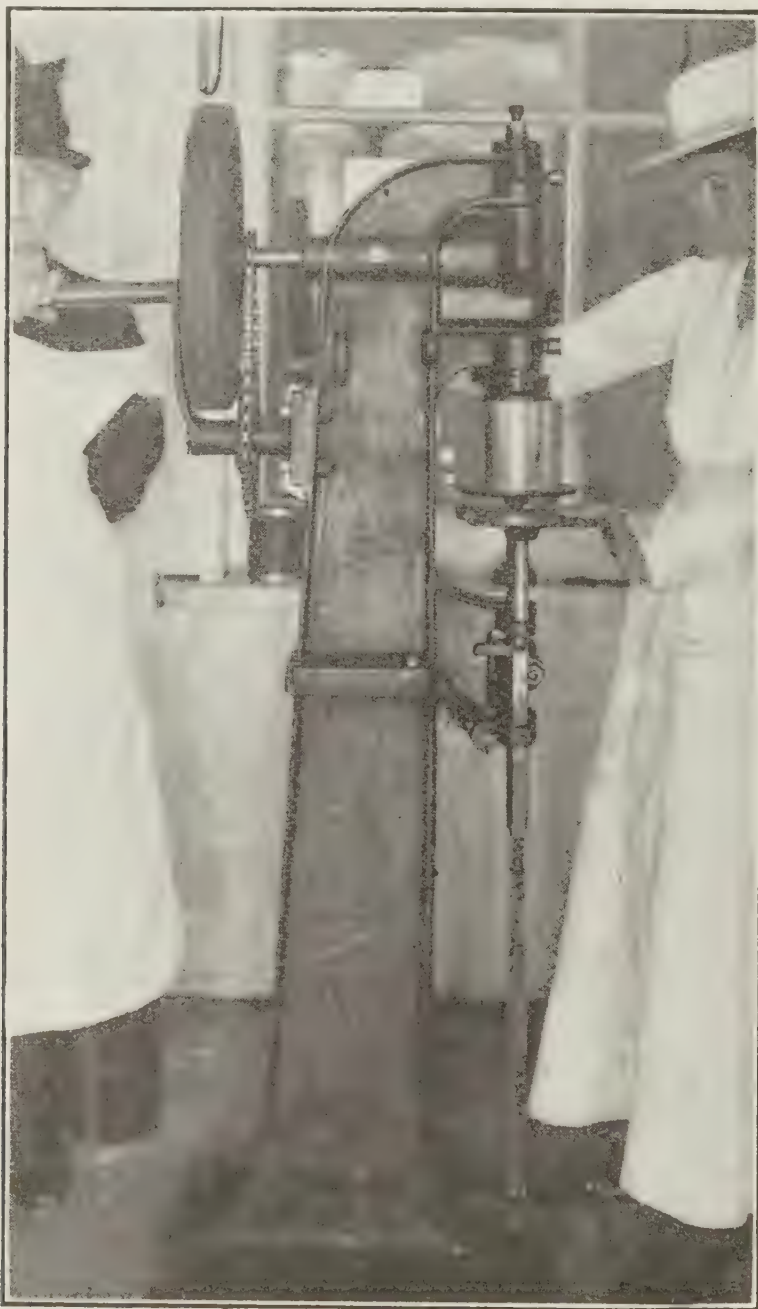
4. Steam boils water in a wooden vat easily and rapidly. We found it possible to cook in one vat 100 or more quarts of sealed cans of tomatoes within 45 minutes.

5. Then what about peas, corn, asparagus, cauliflower, meats, chicken and all those products usually found hard to can! Steam enables you to cook these foods in a steam tight kettle at a high temperature, giving quicker and safer results than are possible by mere boiling.

Now another important question to decide in starting to can is, shall we use the tin can or the glass jar? With the equipment we have provided, both or either package may be used. I have not, however, found a single canning centre worker who is not enthusiastic about the tin can. And I want to say, that the people of this Province have a wonderful privilege in having secured the right to use the very best small sized sealing machine built anywhere. It must be added, that this privilege is only open to those people who support a duly organized canning centre, *and without the use of this sealing machine it is almost impossible to use tin cans in canning.*

It might be well to illustrate the operation of a canning centre by studying one important food which has been handled in quantity. There is scarcely a section of the Province where apples are not plentiful. Unfortunately, many of these apples are more or less defective owing to injuries of insects or diseases. Such defective ones are kept from the market and are often wasted. When cull apples come to the canning centre they may often be graded. Some are big enough and sound enough to can in a light sugar syrup. We have supplied peeling and coring machines which handle this class of apple quickly and well. The skins, cores and remaining apples will make splendid jelly. These are first boiled in the copper kettle and then run into a rack of jelly bags. It is true, that the juice obtained by merely straining in this manner is but a small percentage of the original weight of apple but the jelly produced is of very high quality. Another method which, however, we have not followed, is to press the boiled apples. This does extract a higher percentage of juice but detracts from the quality of the jelly. In order to make our method of straining more economical we have supplied pulp machines through which to pass the pulp remaining in the jelly bags. These yield a smooth apple butter when returned to a copper kettle and boiled down, with sugar and spice added. You will, therefore, see how a simple outfit enables one to treat the apple in a very satisfactory manner.

The last matter which I wish to discuss is the question of a building for canning centre work. This is directly connected with the question of equipment. Any equipment to be efficient must be so placed as to enable the worker to get the most and best results from each effort, each *step*. In the past, communities have been driven, because of lack of funds and lack of time, to use whatever buildings were available. In most cases only slight alterations were made. In view of the large number of families who may derive such great benefits from the canning



The Sealing Machine used at the Canning Centres.

centre, the matter of financing a \$3,500 building is simple. Such a building may be arranged to give almost ideal conditions for the work. Let me mention some important features of a proper canning centre:

1. Strong 2" floors throughout, thoroughly drained and capable of carrying new or altered equipment and also available for storing any class of material whether it be empty cans or bags of sugar.
2. Ventilation for removing steam from the cooking room.

3. Ground floor platform and basement teamway for ease in handling incoming raw material and outgoing canned goods.

4. A cooking room separated from the room where the raw materials are prepared. This leaves the majority of workers from the noise, heat, odor and steam which must arise to a certain extent from cooking.

Undoubtedly, the opportunities presented in community canning are so great that no community, capable of organizing itself and working together, can afford to miss them.

- MRS. CROW, GUELPH.

I am to speak to you on what the canning centre did for Guelph. It would be a very revolutionary organization which would do very much for a city, as a whole, the size of Guelph, in three short months interrupted for a period of six weeks by the outbreak of influenza. However, I will tell you what we did do in that time. For the city as a whole, we had community days. We canned fruit and vegetables which were needed for our General Hospital, our Children's Shelter and the Elliott Home. Then the women of the Institutes came to the Kitchen with the different materials and sugar and did the work, and were highly gratified with the results obtained.

While the influenza epidemic was raging in Guelph, our workers dropped off to a great extent, but as the schools were closed, the teachers who were not doing volunteer nursing in the hospitals came to our canning centre, and we turned it into a soup kitchen. We made 186 gallons of soup and distributed that by means of private motors to those homes stricken by the influenza, both rich and poor alike. We co-operated with the teachers who used the equipment of the central school, and supplemented our soup with jellies and custards. The Board of Health told us we had certainly saved 50 per cent. of the lives by means of this nourishing food, because the people were not able to cook it for themselves.

This brought the women of the city and the country together. You know what an erroneous idea we have of each other. Some women in the city picture the women in the country as enjoying an abundance of fresh eggs and cream and chickens which are had for the picking up; and, some women in the country think, that we, in the city, spend most of our time in rocking chairs on the verandah or walking up and down the main street, which is wrong. We are told the ideal day is eight hours sleep, eight hours work and eight hours recreation; but the average woman's life, city or country, is 12 or 14 hours work and what sleep she can get in in what is left. By means of the canning centre, we were brought into touch with each other. We found that both city and country women could work, and work well. We found the Institute women were more ready to co-operate with the city women in bringing in their produce, and if we had not had the Institutes to depend upon, we would have fallen very short; but the apples and vegetables came pouring into the work room, and we never had to stop one day for lack of supplies.

The women really learned valuable lessons; not one of us is so old or so wise but she may learn more, and many an elderly woman learned to clean and cook her first chicken in that canning centre, and many young housewives learned the same lesson. We all learned lessons which have been of great assistance to us and which brought out character to a most remarkable degree. I remember one old woman who came to our kitchen every week for half a day. I had it so arranged

that we had 12 or 14 women for each half day. This old lady walked two miles to reach the centre; she was nearly 70 and she worked all afternoon most faithfully. One day as she was leaving I said to her, "You must be tired this afternoon; you have worked so well." And she said, "Have not I the right to work? Have not I three of them over there? Who has got a better right to work than I have?" That is the spirit, the spirit of unselfishness.

We had above our steam jacket, the words, "The Work of our hands establish Thou it," and of all the variety of women workers, everyone felt that element in her work, from the society girls who came in silk blouses, to the women who came in their working dresses.

The work brought out the generosity of the people so well, from the manufacturers who gave us coal, to the city stenographer who offered us any of her time outside of business hours to do our stenography. We had gifts like that coming all the time. Mrs. Wilson told us this at our organization meeting, but we did not believe her, but as soon as our need was known we got what we required.

Lastly, I think the greatest benefit this canning centre had for the city of Guelph was to make the Government a vital force, something we could understand. Usually we place the Government on an Olympic height, and call up at them, "Why does not the Government do this, and why does not the Government do that?" But when visitors came to our canning centre and said, "You must be under great expense to put in this equipment?" We could say, "This was done by the Government, because the men overseas needed the material that was turned out. They were trying to conserve food and took this method of doing it." If that same vital touch of Government with people could be kept up and these canning centres developed, it would be of vast benefit to the country at large.

If this canning centre or community canning kitchen can be so worked out as to lighten the work of the mother in the home and give her time to train her children, I say the Institute motto "For Home and Country" is going to mean something more than it has ever meant in the past.

MISS MAC TAVISH, PARKHILL.

You may see samples of the work of the canning centre in the outer hall on exhibition. The value of this produce has been expressed in tons and pounds, dollars and cents, quarts and cans, and in a great many other ways in the papers and magazines. What I have not seen referred to, is the workers who came and worked so hard and faithfully, who had never been attracted to an Institute meeting. The best musical and literary programme never appealed to them, but when there was something that they could see done and completed, they were ready to lend their assistance. Of course, the workers in the Institutes were the best workers in the canning centre, but, besides, we had a great many workers who were never impressed with Institute work before. One day we had a number of women come from an Institute 18 miles south of the town, and some others came from 12 miles north of the town. These two Institutes met and had a pleasant day; we did 300 quarts of chicken and chicken soup, and everyone was away by four in the afternoon, and we could have done 600 if we had had enough chickens. What a revolution this is going to be when it comes to community canning! These canning centres are undoubtedly the beginning of community canning. An average of 500 quarts a day is a simple matter. Ten women can do 500 quarts of tomatoes a day, and the cost of coal and running expenses would



Interior of the Main Room at the Canning Centre, Barrie.

be nothing divided among the ten, and by buying the fruit and materials at one time, they would be greatly reduced also. Each woman would have 50 quarts to take home, and there would be only one large kitchen to clean up, which would be a simple matter for ten women. There is no comparison between each woman doing up her own little quarts in her kitchen and the community canning centre for efficiency and lightened work. When we consider that in 1917 we had but one canning centre, and in 1918 we had seven, I think we may watch this work with interest. It is going to go forward by leaps and bounds and be another feather in the cap of the Women's Institutes.

MRS. BLUETT, LONDON.

There is so much to tell you about the canning centre that I could take the whole afternoon, and then I would not be able to tell you of the splendid work, and the splendid spirit, that was manifested by the ladies of Mapleton and surrounding district, and the Women's Institutes of Elgin County who came to the assistance of the ladies in Mapleton. We were very differently situated to most of the other Institutes. In the first place, the canning centre was located in the cheese factory, right down in a little hollow, a very picturesque spot, but we were so busy we had not time to admire the beauties of nature.

I wish to tell you a little about the community work there. The lady who spoke before me said they had certain days for community work. The only community work that was done in Mapleton was done after hours at night. We made jelly at night by means of lamp light, so we did our community work under difficulties. The first day we opened the centre was about the only day we did community work. That day I think the ladies canned about 136 quarts of peas in the afternoon, but the ladies felt that they had to give place to the Red Cross work, and it was wonderful the amount of work accomplished, when you consider that the women had to walk sometimes 2 miles to get to the centre.

The lady from Guelph has told you about the dear old lady who came to their centre; we had a dear old lady over 80 years of age, who came as an emergency corps, and she had to walk a mile and a half.

In our community we have a men's co-operative threshing machine. Fifteen men bought this machine, and they work it co-operatively. Consequently they do their threshing quicker than the other farmers around and have time to go about in their autos. If the men can work co-operatively in a community to lessen their labor, why should not the women? In that canning centre we were willing to do community work, and we wished to do so, but we had not the time. It took all our time for Red Cross work. Our plan was to have these women come and make all their tomato soup together. I have had experience with community work in different ways, and the way it is to be worked out must be left largely to the local committee in each community. The ladies come in with different jars and fruit, and it cannot always be worked out just as you would like, but community work can be done, whether two or three or a dozen women go together.

In Mapleton, after valuing the produce at wholesale prices, we had about \$479 worth of products. The women came there under all sorts of conditions. Some women had to milk 24 cows before they came down in the morning. Another lady got out of a sick bed, gathered several bags of apples out of the wet grass and brought them to us. Another lady who was on the canvassing committee, but had been ill, asked if we wanted 12 chickens; she said she had 36 chickens to

pick for the next day, but she would have our chickens all prepared by the next evening.

These are only a few cases. Of course, the brunt of the work fell on the Mapleton women, but other Institutes came in to help. We had one Institute from the birthplace of Mr. Putnam which came to help, and they were anxious to get credit for their work because of this fact, and we gave them credit for everything they did.

Q.—What is the rate of charge to each woman for having her materials canned?

MR. PUTNAM: That has not been worked out yet. A plan of community work in the putting up of fruits and vegetables can be worked out very satisfactorily, and it will be quite satisfactory, I am sure, to the people so far as the financial part of it is concerned.

Q.—Can anyone have these Canning Centres, or is it only through the Women's Institutes that we can get them.

MR. PUTNAM: I am not sure that the Women's Institutes can get them.

It was simply a war effort, and if they had not been established last year, I doubt very much if the Government would give anywhere near the same assistance that they gave last year, but since we have this equipment we are anxious to co-operate with the communities concerned, in working out a basis for operating themselves satisfactorily to the Department and to the individuals concerned.

MEDICAL INSPECTION.

DR. MCKENZIE-SMITH, GRAVENHURST.

I am very pleased to be with you again this year to speak to you for a very short time on Medical Inspection of Schools, and to tell you just a little of what we have done in the last year. I am not going to tell you what the other inspectors have done, only about my own work—what we have found in the schools, and what I feel perhaps the most important of all at the present time, the school house itself, and how we as Institute workers can help in that situation, and make the school house a much more beautiful and healthful place for our children.

In the last year we have examined, as Mr. Putnam told you, 14,000 children. I have done 8,000 myself in the last 15 months, and our work is extending as you know. My work has extended over Rainy River, Kenora, Thunder Bay, the entire Peel County, Simcoe, Bruce and other smaller districts.

I am not going to tell you of the need for Medical Inspection, because I think every woman here knows. I went into a school in Brant County, and one trustee there was not overly anxious for that work. We were in the school room, and I was inspecting only the eyes, and I asked the trustees to remain for the inspection. It was a three-roomed school, and out of 36 children in one room, 7 needed glasses, and 9 should have had them on; two of these could not see at all at a distance of ten feet. I was surprised and rather pleased to think that those men at last saw the need of medical inspection.

I find in my inspection there are only 3 per cent. of the children under eight or nine years of age who need glasses; that is congenital bad eyes. Of course in a few schools you find that percentage runs a little higher, but 3 per cent. is a good average for that age, but with the older pupils we find 19 to 22 per cent.

require glasses, and we ask what is the cause of that? I want to speak to you along that line for a few minutes, and to tell you that the greatest cause is the bad lighting of the school room, as a result of the wrong decorating and the wrong kind of blinds.

I went into a perfectly lighted school; it was a beautiful building. The proper glass space should be from one-fifth to one-sixth of the floor space, and the light should come over the left shoulder, and the nearest window to the blackboard should not be nearer than six feet, otherwise you will have shades on the board. This school room had this perfect lighting, but they had put the windows too near the floor, and as the children sat in their seats, they could look out, so somebody came along and put two feet of yellow paint on the windows. The teacher then thought the upper part of the glass was hurting her eyes, so they put white paint on that. Of course it was built so that the sun could come in for about half the school period, or a little more—so they put on heavy dark green blinds, and when you pulled these down, you had a room so dark that the children's eyes were very much injured. Now you can see how you can get a perfectly lighted school and yet get the wrong lighting, and the day has come when we women must go into this question of child welfare, and the conditions under which our children spend their hours in the school. What we suggested in connection with this particular school was, that they take all the paint off the windows. We did not ask them to throw the blinds away as they cost a great deal, but we had them roll from the bottom of the window upwards, so that they could be pulled up sufficiently to keep the light off the children and yet leave the rest of the room flooded with sunshine.

In about 50 per cent. of the schools I examined, they have the old shiny blackboard, and with the light coming in, the work on that board can be read properly only from certain angles. With windows within six feet of the board you get that shading, and as a result you get eye-strain as high as 22 per cent., and higher in some places. In Kenora and Wiarton, the percentage of eye-strain was as high as 40 per cent. These children had only one-twelfth and one-fifteenth of light space, and that light came from the back and the right, so that the child was sitting in his own light, and the eye was in the shade. When the eye is in the shade we get a dilated pupil; and whenever the sunlight strikes the eye, we get a contracted pupil, and this changing causes eye-strain.

Then the decoration of the school room; in Germany I am told they were painting the school rooms in light shades and colors to please the child's imagination and make them smile. I go into many school rooms where the decoration would certainly make anyone smile. In this Wiarton school I asked them what was the color on the walls, and they told me it was salmon, and I said I would hate to eat the salmon that was that color. The ceiling was green and the baseboard was a dirty gray, and the light space was one-fifteenth of the floor space, and there were many shade trees just outside. Although the painting had been done only two years before, we got the parents and trustees so interested, that they set to work and put on a light buff paint, cut away the trees, put in a slate board and put on the blinds so that they could cut off only the sunlight and not darken the room.

I went into a school in Oxford County just before Christmas. They had re-decorated that school last year. It had a dark brown ceiling, dark grey walls, and a yellow wainscotting, and then the brightest yellow and green around the windows that would catch the eye as soon as you entered. They had the old

style church windows and there were trees very near, and only about one-twelfth light space. That was the first time it had been re-painted in ten years, and if this is to stay on for ten years more, what is going to happen to the children's eyes?

In St. George where there is a well lighted school, out of 110 children, only 5 required glasses, and that school had had perfect lighting for seven or eight years, one-fifth glass space, the light coming in on the proper side, light blinds and the slate board.

I was in a Township out from Fort William. There are five schools in that township, and of these, four were built in the same year; three were as perfect little schools as you could go into, with the furnaces in the basement and with the proper lighting and slate blackboards and the right seating. I will only speak about two schools which were the most similar as far as I could judge—built the same year, about the same distance from the homes of the children, and other conditions were exactly the same, and we expected to have the same conditions of health. One had a furnace in the cellar; they had warm cloak rooms and proper lighting. I think there were 25 children in that school and only 2 needed tonsils removed and one needed glasses, and that was all I found the matter with those children so far as throat and eyes were concerned. There were 21 children in the other school, and all had poor throats. They had a little stove in the school room, cased right around with tin that was about four inches from the floor, causing a draft. There was no place for the children to warm or dry their feet. There was not a child with dry feet; I found two or three running around with bare feet and their stockings hanging on that little fence around the stove to dry them. The floor was rough and dusty and cold, and out of 21 children, 18 were recommended to have their tonsils out. I could name you school after school with the same conditions, where the children have to stay all day with cold and wet feet, and where the cloak rooms are cold, and their lunches are left in them. I found the children's lunches if not frozen, very nearly so.

I asked the children how often their mothers would clean those floors if there were as many children in the homes as in the schoolroom, and I would get the answer back instantly, "Why, she would scrub it every day or two, or three times a week." "How often is your school scrubbed?"—"Once, or occasionally twice a year; never more than three times a year." Would anyone of us want our children to live at home under conditions like that?

Many of these children come out of good homes, and those who do not, we would like to have them come to a tidy school.

I would like to say a word in regard to the seating,—the proper kind of seating, the right size for the child and the right distance apart. I find in many schools, that the children cannot stand up straight, and they cannot put their shoulders back, and neither could we, if we sat in the uncomfortable seats that the children sit in for so many hours. If the desk is too high, the child's arm is held at a wrong angle. If the seats are too far from the desk, the child has to sit forward on the seat, or get this awful angle in the back. I have not time to go into this condition, but I do feel that we as Institute members should look into these things.

When I spoke about this question three years ago, we had very few counties asking for medical inspection. To-day, there is not a county that has not asked for medical inspection of schools in some section, or part of it. But we must do more than have medical inspection; we must have the follow-up work. I went

through Rainy River a year ago and we had 157 children operated on there within two months. I went through that section again just one year later, and I found a changed condition. I found the children in better health, and the testimony of the teachers was, that they had a better attendance at school, and the testimony of the mothers was that the children's health was so much improved. There were about 50 children operated upon, who paid the full fee for the operation as they had not come into the clinic before. About 75 per cent. of all the children recommended in the Rainy River District were operated upon. It is the Women's Institutes and those interested in child welfare that have to do the carry-on work, always.

Q.—Do you not believe in sunlight?

A.—I like sunlight in every room, but it must come over the child's left side, and if you put blinds on from the top it cuts off the sunlight.

MRS. BUCHANAN: What colors do you recommend for a school?

DR. MCKENZIE-SMITH: It would be according to what exposure the room had. If it had a southern exposure, you could put on a tint of green, not a dark green, between a green and a grey. I like buff better than anything else. Greys and greens absorb light, and for that reason you would have to have the colors according to the amount of light, so as to have sufficient light for the child's eyes.

A MEMBER: I am very much interested in the school in our town, and I would like to know if it is advisable to have a school lighted on both sides?

DR. MCKENZIE-SMITH: You should have the light coming over the left side, otherwise the hand is always in the shade. If you have sufficient light, I would cut off the cross lighting, although one or two windows at the back would not hurt.

Q.—What would you say about using Dust Bane on the floors?

A.—In a number of schools, I find they oil the floors; oil them about four times a year with raw oil. In sweeping the floor, if you have not got oil on, use Dust Bane; that is splendid. It will keep the school in a much healthier condition for the children, and will be better for the children's throats.

ORGANIZATION OF THE DISTRICT FOR MEDICAL INSPECTION.

MRS. A. P. THOMAS, BEAMSVILLE.

Lincoln County has been interested in the matter of medical inspection for some years. We had been taking it up in our Institute for five years before we got county wide inspection. The ladies of Niagara-on-the-Lake wanted a new school built, but the Department said that could not be done. However, they looked about to see how they could help their children in another way, and they applied for medical inspection. They found they had to have some rural schools associated with them, so they invited Queenston and St. David's; and the rest of the district felt they would also like to come in for the medical school inspection, as most of the district had been interested in it for some time. Therefore, we had a meeting, and every Institute was instructed to send a representative to speak for them, and to give us the Institute's opinion as to whether or not we, as a County, should have inspection of all our schools. Every Institute voted for medical inspection, and the next thing was, how were we to get enough money to carry it on. We went to our County Council and got a grant; then we had to have teas and socials to raise the funds, and I must say, if the ladies will go to

their township or county councils and show the men what they are proposing to do, they will get their support. That was so in Lincoln County, and we received a grant of \$200. We then went to the Inspector and got a list of the schools. We found we had 69, and we divided them up among our 13 branches, which we had at that time (we now have 15). Each Institute was given the schools nearest them. Each of these branch Institutes appointed a committee to approach the trustees and get their consent if possible. Fifty-one schools with an attendance of 2,574 children were inspected.

We got a doctor through the Department, and we had a St. John's Ambulance Nurse to go around with the doctor, but we really did not need the nurse, except in the village schools or the larger schools, because it is impossible to examine many pupils in a day in the rural schools on account of the distance between them. The Branch Institutes agreed to look after the transportation of the doctor and nurse while in their district, and this relieved the county of that part of the work. The County officials arranged the route for the doctor as soon as they had the consent of the trustees. We found that the buildings needed inspection as well as the children.

RESPONSIBILITY OF THE BRANCH INSTITUTE IN MEDICAL INSPECTION.

MRS. KERR, ST. GEORGE.

I have much pleasure in adding my quota to this important subject of Medical Inspection. I think it is second to none in importance, and for two years we have been working on this subject.

I was asked to speak on the Responsibility of the Branch Institute. I do not think that I need to tell you of their responsibilities; I have only to emphasize them. Most of this work is known to all of you by this time after the excellent addresses that we have had this afternoon.

Dr. Smith, for the past two years, has examined our school. The first year that the school was examined we found about 40 needed attention. My part of the programme is the carry-on work. The importance of the inspection is very great, but the carry-on work is important too, because while the inspection brings the defects of the children to the notice of the parents, if the Branches do not take hold of the follow-up work, it is apt to drop and die down. To bring the matter to the attention of the parents, we send little slips to them, and in many cases they will act; but our part of the work was to send these slips to the parents and emphasize to them that we would assist them in having the operation done by having a specialist come and undertake the work on the wholesale plan and thus get a reduction in price. This we did.

The first year our local doctor did his part of the work free, and the specialist just charged us \$15. Most of the children were taken to the hospital and the Institute paid the hospital fees when the parents could not afford it. To those who could afford it, it cost them \$15 and the hospital fees which were between \$3.00 and \$4.00 each. We had most of the pupils attended to the first year, and all the following year. There were a few the first year who did not have the work done, but who saw the importance of it the next year, so the carry-on work and the follow-up work is important in that way.

The children are only too glad to have our Dr. Smith. They said if they could have her all the time they would not be afraid of a doctor, so we had no trouble whatever with the children; they are quite willing to be examined. We not only had the tonsils and teeth attended to, but the eye-sight also. We had five children who needed glasses, and they are wearing them to-day as an outcome of the inspection.

A MEMBER: If you had not had medical inspection, what steps would you take to get it?

MRS. KERR: We would ask the Superintendent to send us a doctor, one of his staff, and then we would consult with the trustees of the school to see if they would allow it, and of course you rarely get a refusal on so important a thing as that.

MEDICAL INSPECTION—FOLLOW-UP WORK.

MISS H. GRAYDON, STREETSVILLE.

We are all creatures of habit, and habits are formed very much earlier in life than we suspect, and I think if we are to have better health conditions, we must educate the children with this idea in view. Mr. Stark who was largely responsible for our work, planned that I should visit in the rural schools. This work is new, and my first trip was in May, 1918. Miss MacIntosh accompanied me; that is, she took me in her car, and she also tried to take something that would be of practical use in the school, which was a porcelain wash basin and also tooth brushes for the children which they might have for 5c.

I will only speak to you from the nurse's standpoint. We are supposed to follow the Doctor's orders. From nine o'clock until recess, we talk along the lines of health. These are simple things, but it is the little things that count. We show the children the necessity of keeping the hands and the mouth clean, because so many of the diseases enter the system through the nose and mouth; and you know, in the rural schools, how difficult it is to wash the hands before eating, and it is our duty to find out the difficulties and obstacles that present themselves. Then we speak on the benefit of fresh air and sunshine; give them the reason why they should walk up stairs, one step at a time, instead of jumping two—because of the extra work that is put on the heart. Children often absorb more information than we ever think. After they were tired listening to the lecture, we had recess and took deep breathing exercises outside which expanded the chest. We had practical work in demonstrating along lines of minor emergencies such as might happen in a school any day, and we had a number in the little time I was going around. Such things occurred as a fractured collar bone; bad cases of nose bleeding, cuts, burns, bruises and sprains, and we had one case of a child who fainted. You would be surprised what nurses these children make. They do not lose their heads, and assist most quickly in getting the windows open. Every school should have some small emergency kit, especially bandages for cut fingers, and such things. I had my own bandages, so I was able to put the bandage on the fractured collar bone.

I took the second trip, which was six months later, to find out what knowledge the children really had. This time I found them with teeth nice and clean and ready to answer any question I might ask. We had demonstrations along different

lines,—a tooth brush drill, for instance; artificial respiration in case of drowning, and each one of those children kept at it until they became proficient. I think many of them could save a life. These things were practised at home. Then we had to visit the homes to find out what they carried home to the parents, and we found they were practising with a brother or sister or even the father on the floor.

The matter of eating his lunch takes the average boy about two or three minutes, and he thinks that is lost time; a great many of them never sit down at all; they are playing some game and eating at the same time. I tried to impress upon them that there are certain conditions we should observe while eating, the same as a child should not go into the water when over-tired or over-heated. These are things to teach the children.

In the afternoon, I was supposed to meet the mothers. A goodly number turned out, but it is not always convenient for a farmer's wife to get away. I found the more satisfactory way was to go to the homes. It takes more time, but they will not discuss things on which they really need advice and help before other women, so I was to visit the homes of every family that was not represented at the meeting. I visited hard for two days, and on the second day we began to compare notes, and found out we had not come in contact with the trustees, and if we wanted co-operation we needed the trustees, and the men in the district, as well as the mothers and the children, so it was arranged that a public meeting be held at each school on the last day of my stay in that section. A chairman was appointed and a sort of impromptu programme carried out. We all had to do a little speaking that night, and Mr. Stark brought along a moving picture machine which gave a great deal of pleasure and delight to the children. Men made speeches who had never spoken in public before, and the children were being educated along the lines of public speaking. One meeting took the form of a luncheon where the children proposed toasts, and we had a lovely time together. Just these little things I hope, and I know, are going to develop boys and girls. I feel that if the children get a right start in life, they may be saved time, money and regrets later on.

MEDICAL INSPECTION—CLINICS.

MRS. H. DRINKWALTER, STREETSVILLE.

I have just a few minutes to tell you a little about the clinics at Streetsville. We had not only a medical clinic but the first dental clinic held in Ontario. This followed the medical inspection by Dr. McKenzie-Smith. We were very fortunate in securing for our medical clinic a large house, the Presbyterian Manse, and in that manse, we had a reception room, an office, a dressing room, four wards, an operating room and the bath room. We had 16 cots. We had a specialist from Toronto, and he brought with him two graduate nurses who stayed in the operating room and in the room where the instruments were sterilized. Then we had two nurses. The nurses alternated in receiving the patients from the operating room. We had the local doctors administer the anaesthetic; we have two doctors, as, fortunately, there was little sickness in our community, so that both doctors were at our hospital from nine in the morning until four in the afternoon. In that way, we had to allow only 15 minutes for a child, but it did not require even

that time. It gave our specialist, Dr. Tait, two very busy days. The first day, we started at nine, and ended about half past four. The second day we started at about a quarter to eight, and by twelve o'clock, 16 children had their tonsils and adenoids removed. We did 21 the first day, and 23 the second day. The medical inspection alone is not of much use. A clinic should be held. The far-reaching results of the clinic do not end with the children who are operated upon. Because of that clinic and because of the interest that has been aroused in that community regarding tonsils and adenoids, a number of ladies have gone to specialists and found they required their tonsils removed.

After the medical clinic, our Vice-President said, "Why not hold a dental clinic?" We had never heard of such a thing, but we said we would try to have a dental clinic. Our District Representative, the late Mr. Stark, consulted with Mr. Putnam, and he sent out Dr. Bothwell and Dr. Rutherford, and the inspection took up the morning. There were 140 children who had their teeth examined. Out of 140, only 14 were perfect, leaving 90 per cent. that needed attention. Out of that number, we were only able to complete the work on 89. We had one dentist for three days and two the last day. We arranged for these children to go to the dentist, so that there would be no confusion at the school.

When we undertook to hold our medical clinic, the town did not help us at all, but later on, one doctor who said we could not do it, sent his own daughter to have her throat examined and had her operated on at our clinic. For our dental clinic, the town gave us the free use of the Town Hall, and supplied the fuel for five days. The Town Hall is situated close to the school, and the inspection took place on Tuesday morning. On Wednesday morning we started with two pupils. As soon as one of these was completed, he would go back to the school and another pupil would be sent over in his place, and this continued all day. There was no confusion and the spirit of the children was wonderful, that is, when their mothers were not with them.

For the dental clinic, we had the dentist estimate the price by the cards. When the children were examined at the dental clinic, there was a duplicate card, a blue and a pink one, and they were written out with the temporary teeth and the permanent teeth and marked as to the fillings or extractions required, etc. These cards went to the doctor who inspected them. The children took the other card home, and had it signed if they wanted their teeth attended to, and if not, they were asked to give the reason. The majority of them wanted their teeth attended to. Then when the dentist attended to the child he marked the price on the card. We knew just what our expenses were, and after the first day we found out how many children we could do in a day.

MRS. NETTLETON, Penetang: We consider ourselves exceedingly fortunate in our little town in having been able to secure medical inspection last fall. Dr. Sirrs conducted the inspection which included between 800 and 900 children. The School Board were exceedingly good and gave us all the help possible, and when the doctor came we had no difficulty at all in organizing. I would like to give a great deal of credit to some of the young ladies in our town—some high school girls, and some nurses—who gave their services so willingly and pleasantly and cheerfully. It is no small matter for a girl to give all her time and such undivided attention to the work as is necessary under such circumstances. Some mothers persisted in keeping their children home from school on the day of the Medical School Inspection, and for the first few days we had a great deal of trouble in getting the attendance up to normal at the school. However, that was overcome and the

doctor was satisfied with the result, and parents had their eyes opened to defects in their children which they had no idea existed, and in the majority of cases they were anxious and willing to have them remedied.

When the inspection was over, we asked our two School Boards to meet Dr. Sirrs and receive her report. The doctor gave a very comprehensive report, and much to the astonishment of the School Board, they found out what was essential and necessary in the schools, and they showed a very proper spirit about having the necessary work done that the doctor asked for, in the matter of ventilation, lighting, etc.

In regard to the carry-on work, that is a question of money, and they are not willing to have a clinic unless some other towns will unite with us in that, and would be willing to help pay the expenses of the nurses and doctors. The people in our town are very enthusiastic about having this carry-on work, and we are hoping the other towns will join with us and contribute to the expenses.

Q.—How did you overcome the difficulty of having the children absent from school on the days of the inspection?

A.—We spoke to a number. I telephoned as many parents as I could, and spoke to a great many teachers, and the teachers used their influence as far as possible, and the older children overcame the timidity of the younger ones. In the first place we did not let them know there was going to be a medical inspection, and we had a good attendance the first day.

At the conclusion of the session Mr. E. R. Greig, of the Art Museum of Toronto, gave a cordial invitation to the delegates to visit the exhibition of paintings from the National Gallery of Ottawa which are now on view at the galleries on Grange Road.

A letter from Mr. I. E. Robertson, Vice-Chairman of the Sick Children's Hospital, extending an invitation to the Institute delegates to visit the Hospital, was then read.

EVENING SESSION.—FEBRUARY 5th.

DR. ANNIE BACKUS, Alymer, occupied the Chair.

Before the opening of the session moving pictures were exhibited of the farmerettes at work, and an illustrated lecture on the Care of the Feet was given by Mr. V. E. Taplin, 310 Yonge Street, Toronto.

OUR DEGENERATING FEET.

At the outset, Mr. Taplin assured the audience that though the figures to be given and the pictures shown would no doubt appear exaggerated and extreme, they really only depicted the true and altogether unfortunate conditions of the feet of all civilized or shoe-wearing races,—both in their deformity—and in their pains and aches. Mr. Taplin carried his audience from the perfect, unspoiled foot of the child to the troublesome foot; the victim of high heels and narrow toes with its bunions, corns, hammer toes and weak arches.

Quotations were given from such authorities as the Academy of Medicine, Paris; Life Extension Institute; Dr. (Major) Munson, Museum of Safety First, New York; Dr. Hoffman, Lecturer American Orthopedic Association; Dr. Jacobson, Associate Editor, *Medical Times*, New York; the *Scientific American* and others in support of his stand on this matter so vitally important to our nation.

The Life Extension Institute says "Disturbances of health due to weak feet are manifold, just as are those due to eye strain. Pain in the feet, legs and back, often mistaken for rheumatism and improperly treated with drugs and liniment, chronic general fatigue and nervous depression are often due to this rather common affliction."

Might we not just as well be partially blind or fractionally deaf as a near cripple in the feet? The *Scientific American* says that 1,149 women were killed and more than 4,000 crippled in the United States alone in 1916 through falling downstairs. High heels were mostly to blame.

Mr. Taplin impressed upon his audience the following main facts:

That the feet of our white babies were in every particular as well shaped and strong as the feet of the children of non-shoe-wearing races.

That foot troubles do not exist among non-shoe-wearing races.

That as 90 per cent. of the feet of shoe-wearing races were more or less deformed, it followed, that wrongly designed shoes were to blame.

That a very large percentage of foot troubles is the result of "lack of information" on this important subject.

That the normal foot itself is a well arranged machine which raises the body and aids in its propulsion—a sort of leverage. Its mechanism is subject to the same physical laws that govern all machines, and will suffer injury if the normal relationship of its structure is disturbed.

That high heeled shoes or those which, through narrowness or pointed shape cramp the toes so that they cannot spread naturally when the weight is thrust upon them, make the foot more a hoof than a foot so that it becomes a stiff, inflexible pedestal attached to the leg.

That the construction of the civilian shoes is influenced almost wholly by consideration of fashion and style. These are irrational and are changed frequently in the financial interests of the shoe trade. The lasts are devised by persons grossly ignorant of, and quite indifferent to the human foot's structure and its physiological requirements as to the covering. (Munson.)

That feet are in the highest degree elastic and insofar as this elasticity and freedom of action are interfered with, is their health, and with it, that of the body, lowered.

That bad feet cause mental irritability, lessen buoyancy of spirit and in many other ways render the possessor incapable of giving his best service.

Mr. Taplin urged:

1st. That Canadians refuse to wear foot-covering not designed to conserve foot power, and that manufacturers be driven to stop making shoes without regard to utility or protective value.

2nd. That our children be taught in schools and at home that the normally developed foot,—which is always widest at the toes,—is to be greatly desired and admired over the bunioned, bumpy, sore foot.

3rd. That routine examinations of feet in our schools be made, so as to discover the prospective cases, rather than allow them to go until adult life is reached when the disability unfits them for gaining a livelihood.

4th. That parents should be brought to realize their duties in this respect.

5th. That when the decrees of fashion go so far as to interfere with our health to such a degree, it is time for legislation to step in and call a halt.

6th. That the shoe business should, as speedily as possible, be constituted a profession, with a prescribed course and examination under Government control.

7th. That the Government should control all shapes of lasts on which shoes would be made.

Mr. Taplin stated he had found young ladies up to thirty more ready to adopt proper shoes than their mothers, and their mothers still more ready than their grandmothers. For "most people are slaves of habit, followers of custom, believers in the wisdom of the past," and only through education will results be obtained.

He urged a monthly foot inspection night in every home to discover the little red spots and bumps and then the causes might be removed. Nearly all young girls and many boys are wearing shoes too pointed and heels too high. Each and every member of the Women's Institutes should interest herself in this important work of footwear reform, and don't forget that reform commences at home.

INSTITUTE WORK IN NEW ONTARIO.

MRS. B. O. ALLEN, FORT WILLIAM.

It is a great privilege to report the work our Women's Institutes are doing in the western part of New Ontario, and I bring greetings as well as the assurance of our heartiest co-operation in any work the Institutes of this province may undertake during the great period of reconstruction.

The districts of Thunder Bay, Rainy River and Kenora comprise a country itself, with its own peculiar problems and its undeveloped resources. Whether this district shall adequately share in the development to come depends, a great deal, upon how well its own people unite in common effort to solve their own problems, yet, we need, in a measure, the assurance of sympathy and co-operation from the older parts of our province.

We in the west, owe much to the splendid women who have come, from year to year, organizing and giving us higher ideals of home life, directing the health of our children, and bringing a word of sympathy and cheer that means so much to our pioneer women. We do not soon forget these women who have brightened many homes in our district, and we mourn the loss of one who was beloved by all, the late Miss Campbell.

In the last few years a great change is noticeable in the outlook of our women. Home and community conditions have greatly improved. It is hard for the women of old Ontario to realize what the institute means to the women in our outlying districts. It is really all they have outside their own homes. Down here you can scarcely picture communities such as we have in our unorganized townships. Some are without churches and some even without schools. You have heard of the experiences of your pioneers, we are going through that experience now. Around the Institute in these parts pivots the social centre, also the centre of activities for the whole community. At their meetings, school problems, building of roads, Canadianizing our foreign population, caring for burial grounds, and all questions which a council would solve, had they one, are freely discussed.

Our women have done magnificent war work. They have given of their sons and men. There are not a few instances, of which I could quote, where women were left on a bush farm while the husband went overseas, and many of these men will not return. Perhaps in raising money they do not excel, but they have given of their time and work, and practically all the parcels sent to the boys of our rural districts were sent by our Women's Institutes, and as it is very often

the only time they meet, many of our women walk four or five miles to pack the boxes the day of the meeting. The Dryden Institute in the Kenora district, handled all the patriotic work for their town. In the Twin Cities the women gave one afternoon each week at the Red Cross rooms. A Red Cross market day was instituted at the beginning of the war, and our branches brought and sent in farm produce. This was sold and the proceeds donated to patriotic work. Our city Institute always provided a luncheon, and some sort of entertainment afterwards. This has become quite an annual event, and we hope to continue this and denote the funds to other purposes. The Fort William branch has provided a rest room at the market, nothing elaborate, but a place where women who drive in from fifteen to twenty miles may rest and have a cup of tea. In two of the districts, our branches were asked by the Victory Bond Committee to sell bonds in their respective townships, and also, in the same manner, collections were made for the Merchant Marine campaign. This was readily undertaken by the women and more than the objective was raised. Now the reason we are asked to do this is, that where no other organization exists, we have established branches and more of the districts can be reached through us than through any other medium.

We are a recognized factor in our part of the country. We have women on the school boards, Board of Health, three representatives on the agricultural association and a member on a civic fair price committee. Our township and city councils are most courteous and sympathetic with our work. At the last district annual meeting, the mayor of the city chartered a boat and took the delegation for a cruise around our harbors, which by the way has twenty miles of water front, with the largest elevator capacity in the world.

Many special local features have been introduced by our branches. In one township an institute fair has been inaugurated. It is now an annual event and this year it was so successful that the men wanted to turn it into a township fair. In many townships, institute halls have been built, which serve as social centres, and for all public gatherings in the community. Our women are the recognized leaders in the culinary art, and do the catering at all large assemblies. During the recent epidemic the Kenora Institute had a diet kitchen, and they, as well as many other branches, supplied nourishment to the sick. Some of our members joined the V. A. D. forces. The Herion medicine chest which the members always keep well stocked was a boon this year. Food demonstrations have been well attended, and have done a great deal towards educating our foreign element.

I could enumerate other unique instances, for our new country is bursting with opportunities for service, and our women, many of whom are accustomed to the hardships of pioneering, never hesitate when it comes to a hard job. We have one dear lady in Rainy River over sixty years of age, who walked fourteen miles over part corduroy road to attend a district annual meeting.

The greatest accomplishment during the last two years has been medical inspection of our rural schools. With very few exceptions all the rural schools in these districts have been inspected. It is difficult to adequately express the appreciation of our people in the western country for this great service. It has given us a status, that I believe, we otherwise could not have gained, for it means so much to the parents living many miles from any centre to have this done. In Rainy River there is sixty-five miles of agricultural district with only one doctor. In the other districts, we have even worse conditions in some parts. Many of the children had never seen a doctor, not a real live one. Doctors were conjured up in their minds with forty or fifty dollars, something not picked up

in the backwoods. If medical inspection, and its results, were the only thing accomplished by the Institutes of these districts, we would think it worth the effort of every member.

There were 3,000 children inspected. Clinics were held in the hospitals where possible, and in other places, homes, churches and halls were used, our women attending to all details connected therewith. On account of the influenza and scarlet fever epidemics, clinics have not been held this year as yet.

The school problem in many phases has long interested our women. We have one unorganized township, to which I will refer, for example. It is four and a half by twelve miles. This township has no school whatever. At one side, there are from thirty to forty children, between the ages of six and fifteen; at the other side of the same township there are twenty children; this does not include the foreign population. Then we have in other sections children who were past the school age before the school was built, and were of use on the farm, so were never sent to school. Also, schools are at a greater distance than a child can be compelled to walk. Therefore we contend, that for us, the grade limit, instead of the age limit, should prevail in our elementary schools.

We have always strongly advocated the need of a home for the feeble-minded in our districts, and protested against confining our insane women in the same cell as our women prisoners in the district jail. Within the last year eleven insane women have been thus confined, pending arrangements for taking them east. I had the privilege of investigating conditions shortly before coming east, and at that time, there were three insane, one feeble-minded and two prisoners in one small cell 14 x 16 ft. Our jail was built to supply the needs of the early eighties. We have found out that there is equal responsibility resting upon the Government and the municipalities, and hope to see something accomplished soon.

District nursing, or nurses for our expectant mothers has been one of our long-thought-of plans. This might be accomplished had our women a woman representative in the district, who could help solve this problem with many others, and act as a centre or sort of clearing house for their ideas. We think this is not asking too much, and our women look to the Institute for their co-operation in this. Our men in the districts have four representatives with two assistants. We ask for one only for each district.

Men as well as women look to the Institute to remedy their wrongs.

Rainy River hopes to have a hospital in the centre of the district to supply needs.

This is really due our women, for they are helping to open and build up a district, rich in resources, which, shortly, will repay this province a hundred times any effort now put forth to help them with their many difficulties, a few of which I have mentioned.

I make this plea for our pioneer women of Kenora, Rainy River and Thunder Bay.

RECONSTRUCTION AND EDUCATION.

HON. H. J. CODY, M.A., D.D., LL.D., MINISTER OF EDUCATION, TORONTO.

I would desire, first of all, to present our hearty greetings from the Department of Education to the members of the Women's Institutes of the Province of Ontario. We know that there are no warmer friends of education in all the province. We

know that in every part of the province you have taken the keenest interest in your local educational problems. I was delighted to hear what Mrs. Allen said a moment ago about the care which the Institutes of the Twin Cities and neighbourhood are taking in a survey of schoolless townships to the north. We shall be very glad indeed in the Department to have any such cases reported, or reported to our inspector in the district, and in the case of a schoolless district where there are children to care for, we will effectively and promptly deal with the problem. I wish to-night to thank you for the signal service you have rendered to the cause of education in the province in the days that are past. I may also express future gratitude to you for what you are going to do in the future in this regard. Before speaking more specifically on my topic, I would venture to add a word of sincere appreciation of what your Institutes have done for the work of the Red Cross and for the general care of our soldiers overseas. From my own observation at the front and behind the lines, I do not think there is any institution in all the world that has a more honourable record than the Red Cross. It is the queen of all the societies that has sought to help the soldiers at the front.

At the very front, in the forward dressing stations, before you come to the casualty stations where the regular issues are made to the men, you will find the Red Cross, right out in the open, ready to provide a balaclava hat to a man who perhaps has lost his hat; to provide for him big warm socks, when perhaps his boots have been shot away, or have to be cut away to relieve his necessity. In the very front, you will find the Red Cross doing its splendid work. It is the handmaid of the soldier from the hour he is wounded, almost to the very hour when he comes back home. God bless the work of the Red Cross; and God bless all those who at home, here, have helped to feed it. You may be sure that your investment in time and money and material in this work has been a good investment, and has benefited in an uncalculable degree our gallant chaps. It is because of the work of our men at the front; it is because of the work of our sailors on the high seas, whether in the Navy or the Merchant Marine, that we are able to-day to talk about reconstruction. Let no one deceive you as to the reason for the request for the armistice. It was not the people behind the Germans who requested the armistice; it was the beaten German army that requested the armistice. They requested the authorities at home to get the armistice as soon as possible. Any man who has come back from the front, and who knows what the conditions at the front were, will tell you that it was because the German army was soundly thrashed, that they cried for an armistice. (Applause.) Their transport facilities had practically broken down. Had the war gone on for another ten days Marshall Foch would have enveloped them. I was in Paris on the day the Germans first made the request for an armistice, and I heard a remark made by General Foch over the telephone, when he was asked from British Headquarters what he thought of the armistice. He said "Why an armistice? I have them, I have them." (Applause.) He had the southern exit bottled up about Metz, and he was gradually closing the other mouth of escape. If the war had gone on another ten days there would have been another, not a Sedan with 80,000 soldiers captured, but something unprecedented in military history, the capture of over a million men. Marshall Foch sacrificed an opportunity of winning imperishable military glory because he did not wish, unnecessarily, to spend the life of a single man if he could gain the same result by rigorous conditions of an armistice. He was ready to sacrifice personal fame for the sake of his gallant men. He is one of the finest strategists and tacticians in the whole world; no other as great in the

whole history of the world. The reason that we are able to talk about reconstruction is that we have soundly beaten the enemy on the field. It is our hope and our anxious prayer these days, that what has been won by the sailors and soldiers shall not in any degree be lost or impaired by the Envoys to the Peace Conference. We are able to talk about reconstruction because we have won the war. In the early days of the war when we used that word reconstruction, most of us, not expecting that the war would last so long, simply thought of the best and speediest way of getting our men back home again and restored to their old positions; but as the war went on we all began to interpret the term reconstruction in a deeper and richer fashion. We asked ourselves the question, whether after all, things in the world in general, in July, 1914, were as good as they could possibly be. We had learned a great lesson of the spirit of sacrifice and service, we had learned a great deal of the spirit of comradeship. We had been drawn together by common suffering and we had seen how artificial were many of the barriers that separated classes at home. So we began to understand reconstruction in a nobler sense. We began to ask ourselves, why should we not have a better world, and a fairer world, and a more equitable distribution of the opportunities of life than we had in July, 1914. We considered reconstruction to mean getting a better world than we had before the war began. It is in that sense that we speak about reconstruction to-day; we do not mean getting things back precisely where they were; that would be an absolutely impossible task; even if we sought to carry out that idea of reconstruction, we never could go back where things were before. We have taken great steps forward. Men and women have got a new conception of their opportunities and their possibilities, and things never can be what they were before. We aim to get that better world with a fairer distribution of the good things of life, and better and more equitable opportunities for all men and women and all boys and girls. That is the general ideal that lies before us when we speak about reconstruction.

We must not be astonished if there is a period of unrest and uncertainty, even of reaction, after this great struggle. Every war in the history of mankind has been followed by a certain period of weariness and lassitude, of reaction, if you will. I imagine that we shall have a shorter period of that kind after this war than has been the case after wars in previous ages, because there has been a great deal of thought given to after-war problems, even while we were in the midst of the war. In these days, it is possible to set things right in a shorter time than was possible before. For instance, so far as the reconstruction of devastated France and Belgium is concerned, I am sure we shall be perfectly amazed to find how speedily the devastated country will be brought back again into cultivation. I imagine that several hundreds of thousands of Germans will be called upon to give a good deal of labour in France and Belgium to undo the wrong they have wrought. (Applause.) I think we shall find that the world can recover itself in a material fashion in a shorter time than we have anticipated. I would like to throw out this word of cheer: What our men have done in the field, and what we have been able to do by way of organization, is the best possible indication that any problems that confront us in the future will not remain unsolved. What we have done in the past is the best guarantee of what we will be able to do in the future. Therefore, don't give place, even for a moment, to those who speak in a pessimistic fashion. I believe that the God who has brought us through this awful war will not forsake us in the days of peace. Be prepared for a measure of possible restlessness and reaction. We are not going to be

daunted by it, we are going to press forward and face it and solve the problems as they present themselves.

I remember going into the City of Amiens in France, just a few weeks ago, and seeing written by a paint brush, right on the plastered walls of a house, "Pessimists will be shot on sight." This was written after the German drive of 21st March. I thought it was a very good motto to carry home for the days of the struggles of peace. Let us not yield to this spirit of pessimism.

Reconstruction will involve, of course, national unity. We can never face and solve the problems that immediately lie before us in regard to finance, transportation and industrial organization, in regard to greater political unity, unless all parts, grades and sections of the country will work together. I regret that any man or woman should try to built up any organization on the prejudice of the people. Never believe that the interest of any class in the community will be served by the misfortune of any other class in the community. The fundamental interests of the people in the country, in the village, in the town, in the city, are identical. You are not going to gain prosperity in the country at the cost of misfortune in the city. You are not going to build up the west if you back up the east. You are not going to make the east prosperous if you beggar the west. East and west, north and south, country and village and town and city, agriculture and industry, commerce and finance, have a common interest in the welfare of this our great Canadian inheritance. Therefore, set your face, as an institution, steadily against those who seek to foster prejudice between class and class in our community.

Naturally, you will expect me, as Minister of Education in this Province, to lay stress upon the educational features of the province. I know, that in addressing the Women's Institutes of Ontario, I am addressing the most sympathetic audience I could possibly find. Over the whole world to-day there is sweeping a fresh sense of the value of education. Take for instance, in the Mother Land, in the midst of the war, it was felt that Britain had fallen behind Germany in the technical race, in the commercial race, because Britain did not give sufficient attention to technical education. Because the school system of Britain did not touch the vast population, there was practically a very inefficient kind of secondary education in the old land. Therefore, Mr. Fisher, the President of the Board of Education, set himself to re-organize the educational system of England and he brought into being many features of advancement. Every single feature that he has brought about has already been in existence, and has been carried out for many years in our own Province of Ontario. We are proud to know that the Province of Ontario takes rank with the most progressive countries in the world in connection with the general outline and scope and plan of its educational system. I do not mean to say that we are perfect; as soon as we think so, it is time for us to go out of business; we always aim to improve. I have very little patience with people, who, in investigating any institution in any country, fasten their eyes exclusively on its defects and have no word of praise of its undoubted merits. Such people rule themselves out of court as sound judges on any subject under the sun. There is a spirit of education throughout the world, and you can scarcely take up any paper or magazine without seeing in it something about education. There is a desire that we should have every advantage that we can get for our boys and girls in this land. It has been discovered that there is the greatest need for medical inspection in rural schools in this and other countries because of the general condition of health in the country. It was found in the United

States that an abnormal number of men called up for service were physically unfit, and so there is a starting up in the United States of Medical inspection in schools, and it is starting up in our own land. Up and down the length and breadth of Canada we all propose to do our best and our utmost for a sound educational policy.

There are one or two factors in connection with our educational work in the Province of Ontario that I would like to mention to you to-night. In the first place, many educational difficulties could be very easily solved by the expenditure of more money, and I want you to set yourselves in the future, as you have set yourselves in the past, to create a popular opinion, that education is not only worth while in an ideal sense, but it is worth while to spend money upon it. (Applause.) You cannot get an article unless you are prepared to pay for it. We are essentially democratic in this country and the very greatest attention is paid to local atonomy. You all know that, again and again, the Department which I represent is attacked for being too highly centralized; yet everyone of the changes that have been suggested to me have demanded a greater centralization. The Department is asked to do this, and to do that, and to pay this, and to pay that, and to take over work that has been done for generations by the local bodies. With one voice we are being charged with being too centralized and in the next breath we are asked to take over more functions from the local bodies. I have reached the conclusion that I am going to weigh the evidence, as best I can, and do what I think is in the best interest of the province, and I do not care who is pleased or who is not pleased. (Applause.)

I want you to do all in your power in your own locality to create a strong and active public interest in favour of larger expenditures on the most valuable investment that we can make in the Dominion; that is, an investment in education.

The next point that I would like to emphasize is, that we must all consider education in these days in a broad sense. We must always recognize that we must have an element of a sound education as a basis for any additions that may be laid upon the substructure. There are certain general subjects without some knowledge of which no one can really be called an educated person. We want trained intelligence in every department of life. Do not allow anyone to stampede you into believing that we can ever substitute for the fundamentals of a sound education any of the splendid and useful and ornamental parts of the superstructure. Do not forget the foundation. We must also remember that a sound mind can really only be in a sound body. We know that a defective body will have a serious reaction upon all mental processes. If the health of the boys and girls are not cared for, they are not going to make the progress that they ought to make in school. You all know that the government has made every possible provision for the local boards dealing with this matter. You know that in our cities and larger towns there is a regular medical and dental inspection of the boys and girls in schools; there is the use of both medical men and nurses for work in the schools and for the follow-up work, and marvellous results have been obtained. Some wise medical man has said, that the seat of all our troubles is to be found from the collar upwards. If you can have every boy and girl sound from the collar upwards you would have very little disease. Now I am sure you will all agree that we ought to have all our boys and girls in all our schools well cared for in point of health.

Now this is something that I want to announce to you, because I know that you are interested in it, and I know you have had a large share in carrying on work of this kind already. We feel the importance of this so much that we have in hand

and are providing the necessary finances for making a complete survey of the rural and smaller town and village schools of the province by a corps of medical inspectors and nurses appointed and paid by the Department in conjunction with the Women's Institutes Branch of the Department of Agriculture. (Applause.) That is to say, we are making a partnership through Mr. Putnam with you, because we know there are no better partners to be had. And if "Barkis is willing" we are prepared to go forward. So that the Department of Education, in co-operation with the Women's Institutes of the Department of Agriculture are prepared this year to make this survey of the rural and smaller town and village schools. The objects of this survey are two-fold: First of all, to get a complete statement of the facts from competent authorities, and in the second place, to encourage local school boards to secure the services of School Medical Health Officers and Nurses as provided for in the Statutes and Regulations in that behalf. We believe that the people in the Province of Ontario are just as much interested in caring for their boys and girls as they are in caring for Holstein cattle and for improving breeds of horses and hogs. (Applause.) On your behalf, I would venture to resent the quasi insult hurled at the people in the country by some who ought to know a great deal better. You want the best for your boys and girls, and I consider it nothing short of an insult, to say that the people in the country do not care a button about the health of their children. All that is necessary is a survey and the bringing of the matter fairly and correctly and adequately before the people, and I am perfectly sure, that in the course of a year or two, we shall find adequate medical and dental inspection secured for all parts of our province so far as its school population is concerned. (Applause.)

The plan provides for a thorough survey of the rural sections of the province. The details will be worked out between Dr. Waugh and Mr. Putnam. The plan will, in a single year, reach more than one third of all the rural schools of the province. We shall continue the work until the whole is covered, but it may not be necessary to continue that work, because I am sure that the inspiration and example and the knowledge that will be passed on by this survey will speedily lead to every school body undertaking this work itself. All that is necessary is to provide the money for this survey. We want you, ladies of the Women's Institute, to co-operate and then the work will be well done. We are working in close co-operation with your organization and this year we shall make great strides in this most important department of caring for the health of the children.

There is another point I would like to emphasize, it is an administrative point. You ladies throughout the province have already entered the field of education as school trustees. In most of our cities, ladies have become members of the Board of Education. I think during the past year there has been a marked increase in the number of ladies who have been elected as school trustees. I venture to say, that one place where your services would be of an incalculable value would be in school sections in rural districts. I am sure that in any school section where there are three trustees, if one or two of them are ladies, we should have great things done in that section. I am sure that some aspects of the care of children that a man is apt to overlook would be dealt with, and dealt with promptly and effectively. You know, under the Statute as it now stands, that if a woman is a rate-payer, if she is on the assessment roll in her own right as a public school supporter, she may be elected to the school board. That does not touch, however, for the most part, conditions in the rural sections, and therefore I would like to make the announcement to you to-night, and I am authorized to make it by the Prime

Minister: that a Bill is prepared that bears the title "An Act to render farmers' wives and daughters eligible as members of School Boards." (Applause.) Under this Act, not only may a woman who has property and consequently has her name on the assessment roll be elected, but the wife or daughter of a farmer assessed as an owner and actually an occupant or tenant of a farm, provided such wife or daughter resides on the farm with her father or her husband, may also be eligible to election as a school trustee. The act confers, further, on farmers' sons the right to be elected as school trustees. Everybody will admit that it would be going too far to allow a farmer's daughter to be elected school trustee and to shut out the farmer's son. I am very glad indeed, to be able to make that announcement to you. It will, I am sure, bring tremendous changes in connection with our whole rural school problems.

A GENTLEMAN IN THE AUDIENCE: Why do you confine that to farmers' daughters or wives? In our section, there are women who would make the very best school trustees who are not farmers' daughters or wives. They live in towns and villages.

DR. CODY: That is worthy of consideration.

A DELEGATE: In unincorporated villages is where the shoe would pinch.

DR. CODY: I am very glad indeed to have the suggestion.

A DELEGATE: Will the women vote for the women trustee, or will the vote be confined to the men?

DR. CODY: That point will be covered; there would not be much use in allowing you to run if you could not vote. My main point is, that we want to provide every possible facility for women to take their share in every school board to which they may be elected. That is the idea, and I am sure it will make a tremendous difference in school life and in the care of children in school.

Just a word more and I am done. In the long run, no changes can be made in a community unless these changes are backed up by intelligent public opinion. We speak of fighting to make the world safe for democracy, but what would you say of the democrat who was ignorant of democracy. There is no form of government that makes greater demands on the intelligence of its people than that form of government which is here to stay, democracy. Therefore the whole key to the future of the development of a safe democracy is in the hands of those who are charged with the education of the children. I believe we cannot over estimate the value of a teacher, or the value of all possible educational agencies, in connection with the development of a safe democracy. I suppose there is no problem in the land that is more difficult to solve, and which yet must be solved, than the problem of education. One of the methods which has been suggested is the grouping of schools, known as consolidated schools. That may not possibly be capable of application in all parts of the province. It has been tried in some places and we propose to give every possible assistance to that remedy where it is shown to be practicable and advantageous for the district. Such a school would be the centre of the social life of a rural community.

We all feel that this year, 1919, ushers in a new era in the history of the whole world. We know, that perhaps of all countries in the world, no country has a safer and greater future than our own Dominion of Canada. We have been far removed from the physical scars of war. We have almost unbounded natural resources. We have an intelligent population. We have men and women who are enfranchised. We have a fairly high standard of intelligence. We are keenly alive to our own defects and we are seeking to remedy them. Surely all the facts

together, must promise great strides in the future history of our land. When Sir Arthur Currie sent the message home to Sir Thomas White at the time of the Victory Loan campaign, he wrote from the City of Mons, and he wrote a masterpiece of English as well as a masterpiece of patriotism, and the closing sentence was this "Weary with the work of destruction we long for the day when we shall be homeward bound, to take up once more, with a fresh sense of its responsibilities, our duties of citizenship in the fairest land in all the world, our own beloved Canada." That is the spirit of the men who are returning. That ought to be the spirit of us who are here in Canada. We are faced with the task of taking up afresh our duties of citizenship with new relations to its responsibility.

I do not know of any organization in Ontario that can do more, and will do more, to build up a high and worthy type of citizenship, than your organization of the Women's Institutes. I wish you every possible success in your splendid work. (Applause.)

THE CHAIRMAN: In your name I am going to thank Dr. Cody for bringing to us the very message that we have been longing to receive. The subject we were discussing yesterday, and the problems that we were so unable to solve have already been solved for us, and we thank Dr. Cody for that solution.

A DELEGATE: Don't you think the children should be taught more about farming?

DR. CODY: Agriculture is being taught now in 1,020 schools in the country, and as rapidly as possible the work of teaching agriculture in the schools is being carried forward.

As a matter of fact, since 1911, when 33 schools in the province taught agriculture, there has been an advance from 33 to 1,020. (Applause.)

MORNING SESSION, FEBRUARY 6th.

MRS. GEO. SMITH, Delhi, occupied the chair.

REPORT FOR WESTERN ONTARIO.

DR. ANNIE BACKUS, AYLMER.

So far as I can learn from listening to the report of the work of the Eastern Ontario Women's Institutes, the Western Ontario Institutes are very similar in their works to the works of the Women's Institutes in all other parts of the Province. For the last four years, the Institutes have given largely, as you all know, to assisting in war work. Our time was mostly devoted to patriotic work, Red Cross work, field comforts, and every organization has been engaged in filling boxes and sending them to the boys from their own locality. There is no necessity of me going into detail, and I will only mention a few of the Institutes as there are some reports to be given by District Secretaries.

I hold in my hand a programme. This was sent to me as part of the report by Miss Gill of West Kent, and as it is an excellent programme and includes the year's work, I am just going to say a few things regarding it. This programme is really unique, and it shows that the women have been working not only with their hands but with their heads. There are several subjects that they have been studying, subjects of great interest, and a knowledge of which will help us largely

in the solution of this colossal problem of reconstruction,—reconstruction the aftermath of the Great War. Miss Gill states in her report that, during the winter months, the women of Kent County met in all day sessions, and in this way they were able to accomplish far more work. They came in the morning and brought their lunch and worked all day. The morning and the afternoon were devoted to work and the other part to discussing such subjects as I have mentioned, and to the social part of the work.

The women in the Western Institutes have been interested in the medical inspection of schools. They have been taking up that work, and let me say this, not only in Western Ontario but in every other part of Ontario, that prejudice which so long has existed in the School Boards is being broken down, and it is entirely through the activities of the Women's Institutes that this has been accomplished. The people of the rural districts are realizing that medical school inspection is not something that is being put over them, but it is an honest endeavour to provide for the school children in the rural sections the same opportunities and advantages that are provided for the school children in our larger towns and cities. When Dr. Cody was speaking last night upon this subject, he assured us that the privilege and opportunity of Medical School Inspection would be supplied to every school in the Province of Ontario before the end of the coming year.

With the reports I have received I was very much satisfied. But there were two little black flies in the amber of my satisfaction, and they were two personal and private letters sent to me speaking of the introduction of party politics by the President in that Branch. Party politics! What do we care for party politics! The vote has been given us. What benefit will it be to us or what benefit will it be to the world at large, if all we can find to do with the franchise which has been granted us is to fall into party lines? (Applause.) The vote is a power. Let us use it as the power and our ideals as the lever, with our Government as the fulcrum, and lift our representatives out of the slimy slough of party politics into the purer air of statesmanship and an honest desire to serve their country rather than their party. (Applause.)

We can do that, and more, if we stand together. We can hasten the day of the millenium which must surely follow these years of horror. Party politics! For goodness' sake let us keep them out of our Institutes. (Applause.)

THE CHAIRMAN: I would like to thank Dr. Backus for that last part of her report. If we had party politics very long in our Institutes, we would not have any Institutes left. Any woman who wishes to discuss political questions, can belong to the same organization her husband belongs to.

REPORT OF EASTERN ONTARIO.

MRS. JAS. REID, RENFREW.

It is impossible to give a full financial statement for patriotic work done by Eastern Ontario, because many Institutes have worked with Red Cross Societies.

Nineteen thousand, four hundred and twenty-three pairs of socks were knitted, valued at \$24,056.50; 21,569 pajamas, towels and miscellaneous articles were sent in, valued at \$24,447.56; and \$31,721.58 in cash was contributed. The average for each Branch, in cash and goods, amounted to \$307.97.

The methods adopted for raising money:

1. Concerts were held, in which the children took a prominent part, also, guessing contests.

2. Initial socials were held, at which each one paid one cent for each letter in his or her name; also conundrum teas, at which each of the items on the menu cards were conundrums.

3. Booths and tag days at fall fairs brought in considerable money.

4. A house to house canvass, donations and voluntary contributions, were the methods used by several branches.

The girls in Eastern Ontario have done much to assist with Institute work in general. Not only have they assisted with patriotic work, but also with the programmes. In the rural parts, I do not think the girls should have a separate organization. Some branches gave prizes last year, at the local fall fairs, to the girls who exhibited the best canned vegetables, war breads and biscuits.

A few branches have rendered valuable service to their own localities in addition to their patriotic work:

One branch has put new blackboards in the school; another has installed a drinking fountain and individual drinking cups; libraries have been supported by a few branches; demonstration-lecture courses in domestic science, home nursing and sewing have been held by several branches. These courses have been of untold value, especially to the young girls.

Now that the war is over, the Institutes are planning new lines of work, which will be of value to the home, school, and the community. They purpose aiding the returned soldier in every way possible, and in our next year's report special emphasis will be given to these activities.

REPORT FROM RAINY RIVER.

MRS. LOCKING.

I am very glad to be privileged to again stand before you and give you a very short report of the Rainy River District. The first thing of importance that I have to bring before you is the medical inspection. After I went back from the Convention here two years ago, we consulted with the Thunder Bay district, and asked Mr. Putnam to send us a medical inspector. He very kindly sent us Dr. McKenzie-Smith. She had only ten days to examine that part of the country where there were over 600 children, but she got around and did all the work, and any of you who have been through that district, know the hardships that have to be endured in travelling over the corduroy roads and combating with the mud we have. Dr. Smith found about 33 per cent. with bad tonsils; 14 per cent. with bad eyes and 90 per cent. of the 14 per cent. were caused from the poor lighting in our schools.

Before Dr. Smith had left the district, we had made our plans for a clinic, and our district was the first in the Province to hold a clinic. After the examination 147 operations were performed. We have no hospitals, and only two doctors and one nurse. We converted two Presbyterian churches, one hall, and one private house into hospitals. The members of the Women's Institutes turned out and did the nursing and sterilizing, and attended to all cases, and every case was successful.

We had Dr. Smith with us again the following year, and after she examined these children again, she found a marked improvement. Owing to the influenza epidemic we have not been able to follow that up, but hope to do so in the near future.

As to dental work, we wrote to the dentists in the district and asked them if they would give us a rate. They asked us to send the children, two at a time, on three afternoons a week, and they had their teeth attended to at half price. The eyes were attended to in the same manner; two opticians did the work at cost, and I do not think there are any more than two or three children who were recommended for glasses that have not got them.

As to our district, for some time we had the unlucky 13 branches, and we could not get away from that, but this year we have increased to 16 branches and have prospects of 2 more. We have 400 members. In 1916 and 1917 we raised altogether \$867.44. In 1917 and 1918, we raised \$1,687.60, or more than doubled our finances, so I think that speaks well for our activities.

Apart from the medical inspection and the work for our children, we have done our full share of patriotic work, most of which was sent in to the local Red Cross centres. Besides that, we packed hundreds of boxes for our boys overseas, and also gave liberal donations to the Belgian and other reliefs.

At the time of the Marine Drive, the Women's Institutes were approached as the only organization which could do the work. Our objective was \$500, and we raised \$733.50. Our most progressive branch has for sometime wanted the short courses, but owing to our distance from the centres, we have been unable to secure the services of demonstrators, but I hope arrangements will be made whereby we will have these short courses soon.

A number of our branches centrally located felt we needed a hospital very badly. We were approached at our last meeting by the town, asking for our co-operation in erecting a monument for our soldiers who had fallen in France and Flanders. The reply we sent back was that if they would make that monument a hospital, we would co-operate with them. (Applause.) We felt our boys would rather have something that was going to be of lasting good to the women and children they had left behind. (Applause.)

THE NEEDS FOR 1919.

DR. W. A. RIDDELL, DIRECTOR OF LABOR BUREAU, TORONTO.

The question of the farm labor needs for 1919, or whether we will require the farmerette in 1919 is what a large number are asking. Now that the war is ended, and we are coming to a time when the problem of unemployment is facing many serious-minded people in the Province, we naturally ask what will be the effect of the demobilization of our irresistible troops, the shutting down of munition factories and the letting out of a large group of war workers, on the farm labor situation? Will the farmerettes be needed at all in 1919? These are questions that we are trying to answer, and which I will endeavor to answer to some extent in the next two or three minutes.

You are all familiar with the work that the Government has undertaken during the last two years with regard to recruiting men from the cities, the S.O.S. boys and the National Service Girls, or, as they are now called, farmerettes.

Undoubtedly, Ontario needs more labor. I think you will all agree, that the Ontario farmer to-day is in a better position to hire labor than he has ever been before, and I feel confident that the year 1919 will see more labor on the farms of Ontario than any year since 1914. Now is a splendid time for farmers to apply for men for farm work. We are sending out from our offices throughout the Province more men during February to the farms than we have ever sent before, except in the harvest rush. Men who came from the rural districts, and who now find it difficult to get work in the cities with their semi-skill in munitions, are now available for the farms, and the keen minded farmer will be awake to the fact that now is the time to get that labor.

When we began to consider the question of the farmerettes, we naturally thought of them as a war emergency which called women from our schools and colleges and from our cities to the farm. These girls did not do any more work than many girls on farms have done. Those of us who had lived in the country had begun to think that women ought not to do certain things in connection with work in the country. As a farmer's son, I would have resented my sister having to do certain things that the farmerette did, because I thought that was the boy's work, but the war came, and all the conditions it brought in, and the need was there, and we must congratulate the women of this country on their splendid response in this and every way. Last year probably 2,400 women went out on the land through our various offices; thousands of others went through the S.O.S. organization, and many others went without any organization. From our Toronto office alone, something over 1,800 were sent on the land; 1,233 went on fruit and truck farms. On these farms they did practically everything there was to do, from planting vines to looking after raspberry patches, cultivating, pruning, all work in gathering fruit and vegetables, hauling it to market, and the keeping of books on the farm. All that work was done very successfully by the women, and I think the demand for farmerettes this year will be greater than last year. In spite of the fact that men are out of employment, they are not going to pick raspberries and do that sort of work on a fruit farm.

Last year we tried to get a number of women to go into canning work. We are not going to do work along that line this year, because it is a fact that they have to mix so much with foreigners, that the girls find it very unsatisfactory.

To mixed farm work, and dairy farm work, we sent about 250 to do the work that the ordinary hired man ought to do. This has been, on the whole, successful. Girls have done practically everything except pitching, and work of that kind.

The wages the first year were rather unsatisfactory; last year they were a little better, and we believe that we can get a considerable number of girls this year for this kind of work providing the wages are better than last year. 42 per cent. averaged \$9 a week. They paid their board out of that of \$4.50. Only 11 per cent. got more than \$10 a week. This year, the girls would like to see at least 50 per cent. of their number receiving \$10 a week.

So far, we have been unable to, in any way, solve your domestic servant problem. We sent only some 50 women as domestics to farms last year. There is no possibility in my mind of the Government organizing this work, for the present at least, to render any service to the country. The wages that are being paid in the cities are out of proportion to the value of the work—for the efficiency of the work. A domestic, or charwoman, in Toronto gets better pay than a member of the police force, and she may be the most unskilled in house work.

Most of them receive \$2 a day, two or three meals and her car tickets. We circularized the organization through the Institutes, and we found the average wage for the domestic help on farms runs from \$12 to \$15 per month. You see how hopeless it is to try to get women to go to the country at wages which are probably half of the wages that is being paid in Toronto to-day.

The Women's Institutes in this country probably create public opinion from the standpoint of labor more than any other organization we have, undoubtedly more than any men's organization in the Province. The happiness and success of our rural communities cannot go on apart from the labor employed in the country. More labor will need to be employed. This may be a radical statement from a man living in the city. I hope that the present prices will never go down on the farm. I would like to see the farmer's profit sufficient, so that he can compete in the labor market with the men in the city. (Applause.) And I believe through proper organization, the farmer will be able to compete. He is beginning to be in a position to-day to compete successfully. Once our war industries are out of the way—and they are practically so now—you will find that the farmer in Ontario will begin to compete successfully in the labor markets of this Province.

Labor, like capital, goes where the investment is best, and the interest is highest, just as the farmer takes his product where he can command the best price for it. There are one or two things fundamental to farm labor: The laborer must have a home; he must have the prospect of owning a farm of his own, or of being a tenant farmer, or failing that, he must have the expectation of getting a cottage for himself on somebody else's farm. Don't think you will ever meet the farm labor situation apart from giving the man a home; it cannot be done, never will be done, and you need not try to do it. I would like to see the Women's Institutes get behind the movement in this country; they should take advantage of the \$12,000,000 that the Government has set aside for houses. I would like to see on every good sized farm where they are going to keep permanent help, a cottage that would invite the right class of labor to go to the land and stay there. You can create that atmosphere, so that men will look upon farm labor as a permanent thing, not merely someone who is hired to-day and fired to-morrow. Try to make it permanent; you can do it.

I have lived on a farm and I know the needs. My grandmother largely moulded our thinking on the farm, and it was good thinking too. I know what the farm women of this country do—they mould public opinion much more largely than men. You have a task before you that will tend to build up in the country, a community that will attract the best type of people. I am sorry that the people who are attracted as laborers to the country communities are not always the best type. What we want to do is to create a job that will give a chance to build healthy strong home life in the country for the hired man as well as the farmer.

ADDRESS.

HON. GEO. S. HENRY, MINISTER OF AGRICULTURE, FOR THE PROVINCE OF ONTARIO,
TORONTO.

I have seen of your work throughout the Province for many years, and it is on organizations, such as you have here, that we, as a Government, are depending for assistance with regard to rural improvement. We have done a great deal to

assist our men folk on the farm to improve their capacity to produce. We have studied science in all its various aspects, and are attempting to assist the farmer in applying it to the land, but I sometimes think we have not done much toward a very important feature of farm life—that is the home. Consequently we are looking to you, the moulders of the home, to raise the standard of the farm home and make it so that the young people growing up will be more inclined to stay with us. That is one of the difficulties we have to encounter. Don't feel that it is a problem just set apart for Ontario; it has always been a problem, and I think it always will be a problem to retain our people on the farms. From the time of Adam and Eve, when we all lived in the country, right down through the ages, there has been the tendency cityward. The proportion of the population engaged in production of food stuffs is naturally going to decrease, not that we will decrease production, but the number actually engaged in production will decrease relatively with the urban population. On the other hand I may say that the farms must supply a certain amount of incentive and ambition to the city population. It would not be a normal condition if all our people stayed on the farms. The populated centres, with all due deference to them, would decline; that is a well known fact in the development of city life. We need the incentive of the people from the farms to keep alive the ambition and spirit for development in the centres. While we have this tendency, let us at the same time try to counteract that, so that we will not have that idea that was so prevalent at one time that the smart boys and girls should go to the city and the dull heads should stay on the farm. The time for that sentiment has passed. We want the brightest of our boys and girls to stay with us on the farms, because we cannot do the best, unless we have the best intellects to help us and take part in the development of the rural life.

Just a word to emphasize what Dr. Riddell has said with regard to farm help. I speak with some personal experience along this line. I am firmly convinced that there is no solution of the farm labor problem except through the laborer's cottage. You must have the cottage on a farm of any reasonable size. I will go so far as to say that, in the better sections of the Province at least, there should be a cottage on every 100-acre farm, where we can hold out inducements to a man to make his home and raise his family. It is a desirable condition from the standpoint of population that our young people should be raised on the farms—not necessarily on the farm itself, but out in the open air close to nature. The time is passed, when we should ask our mothers and wives and daughters in the home to take care of the hired man in the house, and you will find that you can make better arrangements with the man who has a cottage and goes home to his meals. It is an economical proposition to you if nothing else, because you can engage him at a relatively lower rate if he can live with his family; he will live cheaper than you can board him.

Now, when the Dominion Government is coming forward with \$25,000,000 to be used for special housing proposition throughout the Dominion, to be distributed to the Provinces more or less in proportion to their population, Ontario will receive some ten or twelve millions of that, and there is no possible thing that you can do to improve conditions more than developing the idea that the time is ripe for the erection of the farm cottage for the laborer. And the home life of the farmers themselves will be improved. He will feel that, when he sits down to his table with his wife and family with him, and no retarding influence of outside help coming in, which has always been a detriment to the best interest of home life and the development of the child.

In conclusion, I wish to say I came here to show by my presence my sympathy with you. I understand you are getting under way a Provincial organization. That is most desirable. You should have in your own hands the development of thought, and there is nothing that will bring it to its highest point like annual gatherings such as this, where the representatives of the different districts meet, exchange notes and give their ideas of progress. I have been connected with conventions for a number of years, being Secretary-Treasurer of the Good Roads Association which meets in Toronto annually, and that has been one of the great influences in moulding public opinion along that particular line, and you have various spheres of improving home life on the farm, which is very vital to us in the Province of Ontario at the present time. (Applause.)

ADDRESS.

WOMEN AND THE FRANCHISE.

MRS. L. A. HAMILTON, TORONTO.

Now that women have come into enfranchisement, they are faced with the question of how they are going to use their votes, whether they are going to drift into the old political parties, or whether they are going to vote independently of their fathers and brothers and the party to which their family belongs.

I find a great many men have been made party politicians by being born into a certain family. The question before us, is, are we going to allow our independence to be taken away from us by dropping into the old parties, or are we going to remain independent? What are we going to vote for?—for measures or for parties? We run the great risk, now that we are enfranchised, of weakening this splendid instrument given us and weakening the power that is going to be a lever in securing the measures dear to women for many years. If we allow ourselves to drift into parties, we shall be keeping the balance more or less even, merely adding a few more votes on this side or that, making no difference to the scale at all.

We know what we want, and if we keep our votes independent, we can place them on the side of the scale for measures which we want.

Many women have been afraid of the word "politics," and we want to get right at the larger meaning of the word, and to get rid of those uncomfortable distinctions that have been attached to the word. We want to regard the word politics as meaning the science of government, and for that reason one of our chief efforts should be to teach ourselves something about the science of government. We can use our enfranchisement to see that the science of government is developed in the right way.

We do not know much about politics, and I think it is a very good thing we do not, because we have had certain kinds of politics in our country that are not what women want at all. One has only to look at the history of women's organizations to see what it is women want. One has only to look at the history of efforts for social betterment to see what women want. They always want something which has to do with their womanliness and maternal instinct—child welfare, care of the feeble-minded and all moral issues. They have certain standards that they want to see enforced, and all down the history of organization you will see they have been working for these things, individually and collectively.

Most of these have a legislative side to them, and we have found in the past we had to apply to either side of the Government, Provincial or Dominion, in order to get legislation regarding them. With the vote we have power to put men into government who will bring about measures for the betterment of conditions in life.

That places an enormous responsibility upon us. Are we going to allow this responsibility to be dissipated? That is a question every woman should ask herself. We are faced with a great deal. We know that certain things have come to pass within the last year that have been a disappointment to us. We were faced with the national question of conscription more than a year ago, and we know that women of all shades of opinion, and of all sects and creeds got together, irrespective of the party they belonged to; they merely knew there was a great issue before the country and they had power in their hands that might stem the tide of the outcome of that issue. We know how splendidly the women got together so that Canada should go on participating in the war. It was a splendid example of what getting together will do for women. Men said the co-operation and the getting together of the women during the general election more than anything else turned the scale.

The issues that are before us now, are just as great national issues as we had at that time—the care of our young people, housing schemes, moral betterment of our country, and the education and care of our children and many other such matters. If we do not use the power we have to see that these matters are well taken care of, then the results which may come—results of lesser good or even bad results—will rest upon the shoulders of the women. We have been made responsible, and it is for us to consider very carefully what that responsibility means to us.

During the last election one saw certain conditions arise which made us all hopeful. Many of us are feeling that the old party system of Government is a relic of past ages and should not be tolerated under present conditions. The war has shown us tremendous lessons, and not until the Allies united under one supreme command were we assured of final victory. That was a splendid example of what co-operation means. We also had in our election the same kind of a lesson, and many of us hoped that something new would come in our Government, something more like co-operation and less like opposition. We thought perhaps the old party system was doomed, never to come again, but we have had some bitter disappointments in the last two months. We have seen the old party quarrels coming up, and the indications of the old party parliament coming before us, and there is a danger that we may be drawn into political parties and quite innocently vote against many things we most desire.

We must also keep together as women, because as has been well illustrated, we have a numerical power as well as an electoral power, and because our numerical power is great, our electoral power is very great.

I want to tell you what happened in the State of California to pass a certain bill before the Legislature. For fifteen years women clung together to get passed a bill on the Red Light District abatement. It was very necessary for that State, as conditions were extremely bad, and for fifteen years the bill had been turned down. Then the women were enfranchised, and they took their bill to the Government, and it was passed without opposition. That power is what we have in our hands if we keep together.

I want to leave this thought with you: we have a great heritage now. As

women who have a vision of something new in our Governments as well as of our responsibility, we would be very ill advised if we were to allow ourselves to drift apart. We would be very well advised to keep together and bring into our Governments a brighter view of co-operation and a brighter view of citizenship. Therefore my message to you women is: Stick together; unite as voters and keep independent.

ADDRESS.

MRS. W. H. BECKER, ONTARIO WOMEN'S CITIZENSHIP ASSOCIATION, TORONTO.

I am grateful to your committee for giving me these few minutes to speak on a matter of vital importance to everyone who is striving to use her franchise in the very best possible way. We do not wish to lose one single opportunity of advising the live interests or co-operating with those who are bringing great reforms before the people to-day.

A national spirit has been awakened in Canada as never before. To keep this alive and to keep right up to the minute on the reforms and advances we wish to make, we must keep ourselves well informed. We should keep ourselves well posted through our daily papers and other literature on these great questions. Four of our Ontario women have come forward and prepared splendid books. The first is by Mrs. Stevenson of Guelph, on, "Our Government," a very progressive little book on how we are governed in town, city, township, province and Dominion.

The second book is by Mrs. Blanche Read Johnston of Barrie, on "Our New Citizenship." Then we have one by Mrs. W. R. Lang, well known to many of you by her five public addresses, entitled "Handy Guide to the Laws of Ontario," and the fourth book, "Manual for the Conduct of Women's Meetings" is by Mrs. H. W. Parsons. And let me tell you that the publishers find this so absolutely comprehensive that they say they will change "her" to "him" and "she" to "he," and get it ready for the men, whom they know, need it just as badly as the women do.

ADDRESS.

MRS. GRIFFITH-THOMAS, McALL MISSION, TORONTO.

I want first of all to tell you that the McAll Mission in France started in the year 1871, just following the Franco-Prussian War, through the ministrations of Dr. McAll, at that time connected with the Congregational Church in England. It would take too long to tell you of the romantic beginning of the Mission. Suffice it to say that very soon after August, 1871, Dr. McAll and his wife found themselves in Paris ready to start a little mission. It came about through the workmen stating to Dr. McAll, "We have done with organized religion, but if you want to come and preach the gospel of freedom, please do so."

The mission was started in a modest way, with about 40 in attendance; the next week there were 100, and it went on until they had quite a number of halls in Paris and surrounding country, and now we have three associations that help in the work, the English, American and Canadian. In addition to the halls, the pastor had two boats plying the beautiful waterways of France, and from these

he would preach the simple message of the love and forgiveness of God to the different villages on the route.

During the war it was absolutely necessary to turn the work into one of relief, especially for the women and children left behind in the large centres and for the refugees, and so the McAll work has been largely taken up with the question of relief rather than spiritual work. The meetings took the form of women's meetings and mother's meetings, which was a great help to them, as at that time it was almost impossible to have fire or light in the homes, and they came to these halls. Women would come in the morning and start the soup and by the afternoon they would all be assembled and do their sewing, and the children would come in from schools and be helped with their home work.

We shall be very glad if your different branches would become associated or affiliated with us. For the sum of 50c. the branch may become a member, and we will send to you a record of the Society, and literature concerning the work.

ADDRESS.

MRS. C. ADA CHENNELL, WAR FINANCE COMMITTEE, OTTAWA.

I bring to you from Ottawa the greetings of the War Finance Committee. I want to give you a little message from our Government. As you are doubtless aware, the Government has deemed it advisable to introduce into Canada a War Saving Plan that originated in Great Britain, in the shape of War Saving Stamps. Small War Savings certificates accumulating interest have come to be one of the most important factors in the British finances.

The fighting is over, but the war is not over. We have all this reconstruction to contend with. You know as well as I do, therefore, that money is needed, and the Government feel that it is just as important for the women and for the men that they should save and invest in Government securities, as it was during the time of the actual fighting. Hence we are undertaking an extensive campaign in the hope of making the Canadian War Savings Thrift Stamps popular throughout the Dominion.

People save from a variety of motives; some will do it systematically as individuals; others are influenced by their associates, and one of the most powerful influences has been through a War Savings Society or Thrift Club. A very simple form of organization is all that is necessary, and usually the membership is recruited from among those already belonging to an organization held together by mutual interests. These societies or clubs are affiliated with the War Savings Committee. Thrift must become popular to make for real progress in this country, and the War Savings Societies make it popular.

Possibly some of your ladies have not seen the stamp. I am going to show you what a Thrift Stamp is. The money value is 25c., and when you get your book full you have 16 stamps, which cost you \$4.00. You take that to your Post Office, and for it they give you a \$4.00 War Stamp. The Government at the end of five years gives you \$5 for this stamp; that is 4½ per cent. compound interest. When you have this book full, that is 10 War Savings Stamps, you have \$40, and in five years the Government will give you \$50, and that is making a good bank account, by being able to save in a small way.

Everybody has been buying bonds to their utmost limit, but that means large

sums of money. Now we are going to be able to save small amounts, and by so doing we will be helping the Government and ourselves. We will be loaning to the Government money which is so much needed for construction work throughout the country. The amount the Government is asking for is \$50,000,000, and we are going to get it too, because Canada has been known as the great big backer of the war, and Canada is not going to back down now. The people must be the great big backer of the reconstruction plan that the Government has on hand. Our country has been built up from small beginnings, so they are never to be despised. It was the little tiny shack in the pine woods, years ago, that was the beginning of Canada. To-day, we are a proud people because of our small beginnings and because we can stand forth and say we have developed so magnificently, not so much because of what our fathers or grandfathers left us, but, because of what we have made ourselves, and what we are still ready to make of this wonderful country with its unlimited resources.

What have our men not done for us in this war! They have saved us our homes and life itself. Now we must not fail them in this reconstruction period. The Government is in need of the money; lend all you can. We are not asking you to give, only to lend, and in return you will have a bank account for your children.

In every large city we have a Secretary. Write to the Secretary and tell him your Branch is willing to form a society, and he will send you all the literature we have. To every little group of women that are gathered together and form a society, we will send a nice certificate.

THE HOT LUNCH FOR RURAL SCHOOLS.

MR. A. H. LEAKE, DIRECTOR OF DOMESTIC SCIENCE, DEPARTMENT OF EDUCATION,
TORONTO.

Canada to-day is passing through the most critical part of its history, and upon the work we do during the next five years will depend very largely the character of the population in the future. Education has not always been considered of prime importance. In the early days of the war, you will remember in Great Britain a raid was made on the schools. The schools were closed; pupils were taken out of schools, but the experience of Great Britain soon proved that to be the wrong policy, and the Minister of Education in England stated that tremendous harm had been done in taking pupils out of the schools, and from all sides, from Britain, France and the United States, we got the advice to keep our schools going, and to let them be the last to suffer.

Now the work that the Women's Institutes have to do in regard to education, I consider of great importance. You do not always recognize your power. We men talk sometimes, you know, about a man being the boss in his own house. We like to talk that way, but after all it is pure camouflage. Any woman who knows her business can get what she wants, and I think now, if the women of this Province will make up their minds as to what they want in education, they will get it. We men have been at work on education for a good many years. I would not like to say we have made a failure of it, but we think it is time for you to take a hand in the game. In Toronto we have four women on the School board, and these women have done more for Manual Training and Household Science

than all the men on the Board put together. (Applause.) The Minister of Education told you last night that a change is about to be made in the law by which women may become members of the Rural School Board. I have had the pleasure of addressing Trustee Associations in St. Thomas, Brantford, and Grand Valley, and there was scarcely a woman present at one of these meetings because their standing was not recognized. The rural school is the most important part of our educational system. If we are going to build a vigorous, virile nation of homes, we have got to pay attention to the conditions in the rural schools. You have heard a great deal about medical inspection, but you have not heard too much. In the United States, the draft showed that there was from 7 to 20 per cent. more physical defectives in rural districts than in towns and cities. I have not been able to get corresponding figures from Canada, but we may fairly assume that conditions here are very much the same.

I am particularly interested in Manual Training and Household Science in rural schools. We have from 50 to 75 rural schools teaching Household Science, which shows it can be done in all rural districts. Let me give you an experience I had in one school. I went in before nine o'clock in the morning. I saw four girls paring potatoes; a couple of boys were carrying buckets of water. These girls were preparing the potatoes for soup. They made all their preparations before nine o'clock. School went on until recess. These girls then prepared the soup and placed it on the stove—a three-flame burner oil stove which they had in the corner of the room. The girls then went back to their work. Between 11 and 12, the girls left their work occasionally to see that everything was going on all right. At 12 o'clock school was stopped. The girls and boys washed their hands and smoothed their hair. They sat at their desks and took out their lunch boxes. Some had paper serviettes, some linen napkins, and others oilcloth which they spread on their desks. They left their places, walked up to the front where each was served with a bowl of potato soup and they ate their lunch in an orderly manner.

In another rural school, I saw the teacher writing the work on the blackboard and eating her lunch at the same time. The boys and girls were crowded around the stove and some were running around the room. Is that the way to have lunch?

Before the lunch in the first school, the teacher stood up in front of the class and said grace. The whole lunch time took about half an hour. Certain boys and girls were appointed to clean up, and the boys, let me tell you, did their share in the business; they carried water, and washed and dried dishes, and why should not they? We have an idea that the homes are all made by the women—nothing of the sort. It takes two people to make a home, and why should not our boys have their duties in housekeeping and in making a home of the house, as well as the girls? Until we get that point of view, we are not going to have the homes we ought to have.

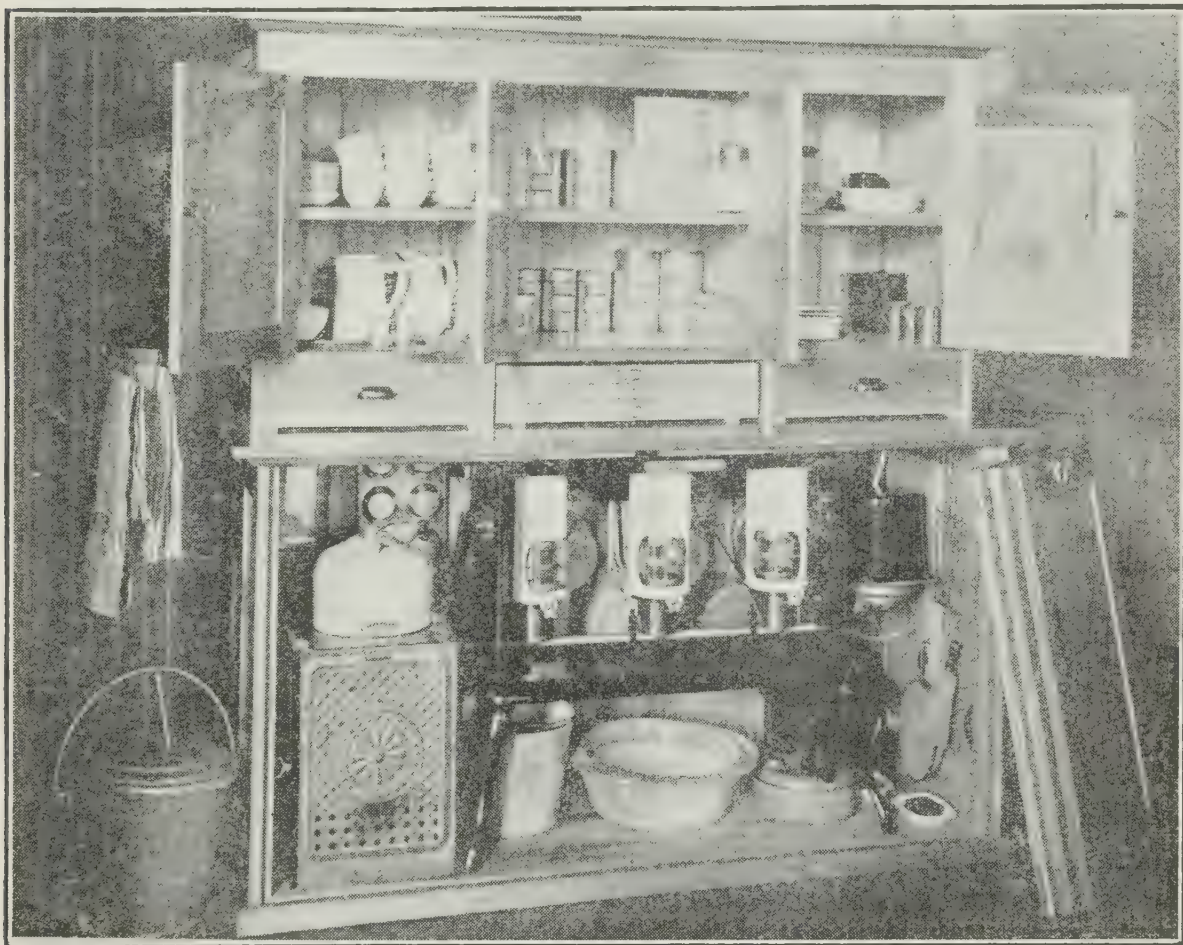
Another school had a large table and the children sat around and had their lunch together, as they would at home. The result of such courses is that the work in the afternoon is very much better.

Let me tell you how important this work is considered in Britain to-day. Four hundred thousand girls have married soldiers. Everyone of these 400,000 were engaged in munition work or some other patriotic work; they knew nothing about homemaking, and the British Government considers the home so important that it is making provision to give adequate training in residential schools to 300,000 of these girls, and not only give them this training but pay an allowance

of \$5 a week while taking the training. They consider it is an expenditure that will produce good dividends.

What are the advantages of the hot lunch? Without exception, every teacher who conducts this hot lunch says the work in the afternoon is very much improved, and there is a better spirit among the children and in the community.

Of course, where this work is going to be carried on, the trustees, parents and teachers must co-operate. Trustees, you know, do not like new-fangled ideas, but get an energetic teacher and let her show what can be done, and the Board are generally willing to give it a trial. If a thing cannot stand on its own feet after a trial, throw it out. A good deal depends on the teacher. No matter how enthusiastic the Board or parents may be, the teacher can kill this work without



Equipment utilized for instruction in Domestic Science and furnishing Hot Lunches in Rural Schools.

saying a word. All she has to do is shrug her shoulders and turn up her nose and the thing is done.

We have too many suit-case teachers in this Province—the teacher who packs her grip at noon on Friday and takes it to school, catches the four o'clock train and shakes the dust of the section from her feet until sometime Monday morning. We cannot carry on like that. I do not know that the teachers are altogether to blame in all cases. A duty devolves upon the section to make it attractive for the teacher to stay from Friday to Monday.

In order to carry on this work, the Department of Education has been for sometime experimenting with equipment. We have had two normal schools develop an equipment which can be put into the rural schools, consisting of a three-flame

burner stove, covered by a cabinet, and a small cupboard containing the necessary utensils. That equipment can be put in the corner of any one-roomed school, and costs from \$40 to \$75. We also ask that the little children—the younger grades—shall have two half hours a week for needle work and sewing, not only making, but mending. (Applause.) You know, probably better than I do, the immense waste there is because we do not know how to mend properly, and for the life of me I cannot see why every girl throughout this Province should not be taught how to sew. (Applause.)

I do not want to be parading English practice to you all the time, but every girl in every school throughout Great Britain spends $2\frac{1}{2}$ hours a week at sewing, and I really do not think we would be asking too much if we asked for $2\frac{1}{2}$ hours. As things are at present we only ask for two half hours, and one hour a week in cooking or household management.

We have prepared a Manual on Household Science for schools. This contains absolutely nothing that cannot be done in any one-roomed school. There are 20 lessons in sewing; 20 on the care of the home and 20 in simple cookery. We have been apt in the past to look upon Household Science as cookery, but there is the living room, the bed rooms and the bath room and the general care of the home which requires as much attention as the kitchen.

There is rather an extensive chapter on the school lunch, giving a large number of dishes, their preparation and recipes. The Department is doing all it can to encourage this work. We give a grant to every School Board that puts in this equipment from \$40 to \$75. There is a grant for every teacher who teaches this subject, and in the Normal Schools we are teaching the work. The teacher may earn from \$10 to \$50 more, according to the character of her certificate, and in addition we provide \$10 extra to the teacher if she serves a hot dish from November to March.

If I had my way, there would be a regulation which would make it absolutely essential for the school lunch to be supervised. I mean, no rural school would be allowed to leave the children in the school from twelve to one-thirty without the supervision of a teacher or somebody in authority. (Applause.) I visited one two-teacher rural school at noon. The teachers were gone, and the boys and girls were having their lunch. They were running all over the place; boys and girls everywhere mixing together, and I am absolutely convinced there is more moral and physical harm done during that unsupervised hour, than at any other time during the week. It should not be a difficult matter to get the teacher to stay, or somebody to look after the children.

I would just like to read one or two letters I have received from rural school teachers who have introduced this work.

One girl says: "Surely this is missionary work, for the heathen are not all in foreign lands. When teachers who really love their classes have to work with School Boards who are as dead as door-nails, believe me, it is martyrdom."

This girl sends me the receipted bill for the cost of the equipment, and adds: "I spoke to my secretary-treasurer and he seemed favorable. A week later, I learned he had interviewed the Board, and they called it nonsense. That did not discourage me in the least. I knew every new thing must struggle for existence. I requested a meeting of the School Board. I met my Board last Friday night, and after an hour's talk with them, my efforts were crowned with success, and the Board were really and truly converted."

Another girl at Snelgrove says: "I must thank you for converting the trustees.

We have all the equipment now for hot lunches and began the work last Tuesday. They have been successful so far."

Another girl says: "We have got the hot dish for lunch, going. The Board did not favor it, but as the children were anxious, we are going to manage it with no cost to the Board except the oil. At the end of the month we hope to have macaroni and cheese and scalloped potatoes. In sewing, we have an hour's practice once a week. The boys fill the pails and wash the dishes as cheerfully as the girls do."

Another teacher in Wentworth is doing remarkably good work. One of the boys caught a rabbit, and the children asked to have the rabbit for lunch. The teacher supervised the preparation of this rabbit for lunch, and she said it was delicious. She adds: "It is not the fact of having these things, but the spirit around the whole business, the spirit of co-operation and interest."

Just a word about Manual Training. The boys are taught how to do things, I cannot see why a rural school should have a broken chair, or hinges off the doors, or broken windows, when there are four or five boys anxious to do things and to be shown how to do them. At a school in England where they charge the highest fees of any school for boys in Great Britain, Abbotsholme, the boys do all the work around that school—felling trees, cement work, carpenter work, painting for the school and all these things. The Educational Department is doing all it can, and we appeal to you to give us your assistance.

I am willing to speak to any Women's Institute that is anxious to consider this question of Household Science and Hot Lunch in the rural schools. This movement is going to spread like wild fire throughout this Province.

A MEMBER: May I ask the speaker if the book he holds in his hand is furnished by the Department?

MR. LEAKE: It is called "Household Science for Rural Schools," published by William Briggs Company at 40c., but we hope by arrangement with Mr. Putnam and the Department to send a copy of this book to every Women's Institute. (Applause.) And in addition to that, by regulation, the trustees are expected to provide a copy of this book for every rural school. We do not ask that you should follow these lessons straight through, but to pick out what you want. You are at liberty to work out this subject according to the needs of your community.

Q.—Who furnishes the food for the hot lunches?

A.—In a majority of schools, the first year, the provisions are brought by the children. Some children bring potatoes; some, a little milk, and so on. But the second year, there is a grant given by the Department which would be sufficient to furnish the supplies. Some schools hold entertainments to raise funds for the supplies for the first year, and after the first year there is no trouble, and we have not had any difficulty the first year yet.

A letter from lady Hendrie was then read, asking the women to contribute toward the fund for the purpose of purchasing a wedding gift for the Princess Patricia who gave up her royal title to marry the man she loved, thus showing her democratic spirit.

THE CHAIRMAN: We will now have the report of the Resolutions Committee.

MISS WATSON: May I be allowed to offer a special resolution:

As it is now three years since we have had an opportunity of meeting together from throughout the whole province, and representing as we do 30,000 women, we consider it a fitting occasion to express our great appreciation of the able and untiring leadership of our Superintendent, Mr. George Putnam, and express the

hope that he may long continue as our head and director, and that a copy of this resolution be sent to the Minister of Agriculture.

The motion was seconded, and carried with a standing vote.

MRS. FOWLER: Speaking for the Eastern Convention, I can only say we most heartily endorse that motion.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

MRS. W. TODD, Orillia: Your Resolutions Committee met in the office of the Superintendent at 10 o'clock, in the morning of the 4th of February, 1919. The following resolutions were dealt with:

1. "We, the members of the Lobo Women's Institute believe that compulsory military training was the chief cause of the great European War.

"In view of the impending peace, the object of which is to remove militarism from the world, and the establishment of a league of nations, we wish to place ourselves on record as being opposed to the continuance of military training in our schools and colleges, and we would request that it be eradicated from the school curriculum, and in its place, additional prominence be given to physical culture."

Your Committee recommends that the above resolution be laid over until such time as we have full assurance that such training is not necessary. Carried.

That the Resolution from the O'Connor Women's Institute asking that free homes for the insane be provided, and also that the Resolution from Kenora, Thunder Bay and Rainy River Districts asking for adequate provision for the insane and feeble-minded be endorsed by this Convention, and forwarded at once to Dr. Gordon Bates, Secretary of the Provincial Organization for the care of the Feeble-Minded. Carried.

3. That the anonymous resolution received: "Resolved, that all bachelors be taxed, and that a smaller tax be imposed on married people who have no children, and that the income from such taxes be applied to the education of children who have no one to provide educational advantages for them" be thrown out. Carried.

4. That we endorse the protest of the Wilson Road Maidstone Branch against the importation of poppy seed into Canada, as it is believed to be a noxious weed, and that such protest be forwarded at once to the Horticultural Societies Convention, now in session. Carried.

5. That the request of North Oxford for representation on a special committee which may be named to deal with transportation, entertainment, etc. of delegates be laid over for open discussion under District work. Carried.

6. That the resolution of the Central Dumfries Women's Institute asking this Convention to petition the Government to grant universal suffrage to women before the next election be laid aside as not coming within our jurisdiction.

A MEMBER: As I represent the Central Dumfries Women's Institutes, I would like to say a few words on this resolution. As you all know, the question of temperance is coming to the front before very long, and there will be a vote taken in the Province along the line of whether we are to have a dry country or to have liquor again. So at one of our meetings we thought it would be advisable to make sure that we would get on the voters' list and have a say in this matter. The vote is to be taken, and we all know that the parties who are opposed to having prohibition in Ontario are working every day, sending out literature, etc., and we wished to have some say at the next elections on this important question.

A MEMBER: I understand the vote was promised to us before this next Provincial election on condition we got our names on the voters' list. I believe any woman of 21 years of age is supposed to have a vote, but I would like to know how we can tell whether our names are on the list.

MISS MCKAY: In North Ontario we have just prepared the voters' list for the Provincial Elections. Every woman who is a British subject by birth, or by naturalization, who has reached the age of 21 years is put on that list, be she what she will.

A MEMBER: Are there any disqualifications for women?

DR. PATTERSON: Mrs. L. A. Hamilton is coming here to explain how to get your name on the voters' list.

A MEMBER: I understand this resolution applies to the Federal Government. I want my name on the voters' list, but I do not feel that this is a subject for our Institutes to discuss.

DR. PATTERSON: We have had the Federal vote for a year.

MRS. TODD: The Committee felt they did not wish to bring into the Institutes any question of a political nature.

A MEMBER: I do not think this is a political question. We should have a say as to whether Canada should go dry or not. That really was the object in sending this petition to the Convention.

A MEMBER: Might I suggest that action on this resolution be deferred until after we have heard Mrs. Hamilton and her explanation? I move that as an amendment.

MRS. BUCHANAN: I second that amendment.

A MEMBER: Are we taking the stand that this is a political question? Is it not rather a social matter? Amendment carried.

7. That with regard to resolutions from Central Dumfries and Halton Counties upon daylight saving, we ask careful consideration by our Federal Government as to whether the advantages of this measure outweigh its disadvantages, and if its continuance be found to serve the best interests of the Dominion, that this Act be so amended as to make it more acceptable to the rural people. Carried.

8. That in respect to the resolution from North Essex asking that action be taken to stamp out the manufacture, sale and importation of cigarettes, we urge our members to interest themselves in the study of the increased use, and the injurious effects of cigarettes upon the children, with a view to arousing public opinion as to the necessity of such action being taken. Carried.

9. That the South Lanark resolution, strongly condemning the Senate for vetoing the Bill for Amendment of the Criminal laws as passed by the Commons, be endorsed, and that we express the hope that, in the light of further consideration, these amendments will be passed at the coming session. Carried.

10. That the resolution of South Lanark asking that a woman (or women) be appointed on the Board of Censors for Moving Picture Films, be adopted, with the addition that we ask for a Dominion Board of Censors, to standardize pictures so presented. Carried.

11. That the resolution asking that lectures on "Laws Relating to Women and Children" and on "Citizenship" be included in our Summer Series of subjects, be adopted. Carried.

12. That the Branches be advised to bring matters of official interest to their Annual Meetings and from these send in their suggestions, recommendations or resolutions for the agenda of the Convention, and have some person appointed to open the discussion. Carried.

PLANS SUBMITTED FOR PROVINCIAL ORGANIZATION.

PLAN A.

That a Board of Directors be elected at the Annual Conventions, or at special meetings held in each of the seventeen districts indicated below, and approved by the Central Convention:

No. of District	Counties in District	No. of Branches	Representatives for 17-18
Eastern			
1.....	Dundas, Glengarry, Prescott, Stormont.	21	Mrs. J. P. McNaughton, Maxville
2.....	Carleton, Lanark, Renfrew.....	44	Mrs. Jas. Reid, R.R. No. 2, Renfrew
3.....	Addington, Amherst Island, Brockville, Frontenac, Grenville, Leeds South, Leeds North and Gren., Lennox.....	32	Miss M. E. Pearson, Merrickville
		97	
Central			
4.....	Hastings, Northum'land, Prince Edward.	62	Mrs. W. R. Munro, R.R. 3, Demorestville
5.....	Durham, Haliburton, Peterboro', Victoria	55	Miss E. E. Haycraft, Bowmanville
6.....	Ontario, York.....	58	Miss Kate McKay, Brechin
7.....	Dufferin, Grey.....	62	Miss E. H. Besley, Shelburne
8.....	Halton, Peel, Wellington....	56	Miss H. Beardmore, Port Credit
9.....	Haldimand, Lincoln, Welland, Wentworth.....	77	Miss L. C. Burns, Caledonia
10.....	Brant, Norfolk, Oxford, Waterloo.....	73	Miss Lee McCrae, Tillsonburg
11.....	Muskoka, Simcoe.....	73	Miss Jean Graham, Elmvale
12.....	Parry Sound, Timiskaming.....	43	Mrs. M. J. McArthur, Burk's Falls
13.....	Nipissing, St. Joseph Island, Algoma, Manitoulin.....	44	Mrs. Geo. J. Priddle, Silverwater
14.....	Kenora, Rainy River, Thunder Bay	34	Mrs. M. Sullivan, Emo
		634	
Western			
15.....	Bruce, Huron, Perth, Union.....	59	Mrs. J. Patterson, Gadshill
16.....	Lambton, Middlesex.....	56	Mrs. J. G. Dawes, Thedford
17.....	Elgin, Essex, Kent.....	53	Dr. A. Backus, Aylmer
		168	

Total number of branches.....	899
Girls' Institutes or Junior Women's Institutes .	19
	919

The seventeen directors will be empowered to elect from among themselves a President, two Vice-Presidents, and four (or six or eight) directors to form an executive, and from among themselves or otherwise, a secretary-treasurer.

The delegates at the Convention in the Fall of 1919 will be given the opportunity of finally determining the method of election of representatives on the Board.

The representatives named in the above list were appointed at the Conventions held in the fall of 1917. For the Eastern Ontario and Western Ontario Districts the choice was made by the delegates at the respective conventions, while for the Central Districts, a nominating committee composed of Dr. Mary McKenzie-Smith, Gravenhurst; Miss M. V. Powell, Whitby; Mrs. F. W. Watts, Toronto; and Miss Gertrude Gray, Toronto, was asked to name the representatives. It will be left with the delegates to the Central Convention (February 4, 5, and 6, 1919) or a committee chosen by the delegates to approve of the persons named for the Central District, or to have others named in their place. In any case, one person is to be chosen from each of the districts named, if a representative body is to be chosen. A committee from among the directors and with such additions as the directors may recommend will be asked to prepare a constitution and by-laws. In order that the Board may be truly representative of the people, it would be well to plan for district or sectional meetings in each of the seventeen sub-divisions.

PLAN B.—SUGGESTED BY THE INSTITUTES OF PEEL COUNTY.

"A Provincial Women's Institute Council to be formed, representing and selected by the membership of the Province of Ontario. That such a Council be composed of delegates from each Women's Institute District. That one delegate be elected at each annual district meeting, from the resident membership who have previously held office within the district.

Such delegates to meet annually in the City of Toronto, elect a President, three Vice-Presidents, Secretary and six Directors who shall constitute the Executive and shall meet from time to time, as circumstances demand. This resolution to be effective after it has been endorsed by this convention.

The Superintendent to be requested to assist in carrying out the terms of this resolution and to notify the districts of the Province as to the nominations of delegates at the next district annual meeting, and to call the first meeting of the Council not later than September 15th, 1919.

It is further recommended that the executive of the council, so chosen, be requested to prepare a Constitution for the guidance of such council; such constitution to define the status, powers and duties for the propaganda of the Women's Institute Council of Ontario, but such constitution not to be adopted until it has been approved by the aforementioned provincial conventions."

This plan would give 100 delegates who would have the power to elect officers and directors.

Toronto, January 31st, 1919.

13. After careful consideration of the two plans submitted for Provincial Organization, copies of which have been distributed, we recommend that Plan A be adopted with the addition that the seventeen representatives of this Convention have power to add to their number. We feel that this plan is necessary as a temporary measure that we may be in a position to send delegates to the Dominion Organization meeting to be held, shortly, in Winnipeg.

It is recommended to these representatives that as soon as possible the Advisory Committee be elected by the Districts and be responsible to those Districts for their work on that Committee.

MRS. TODD: Plan B could not be put into effect until next fall after all the District Conventions have been held. Your committee has recommended the adoption of Plan A which gives you a working committee at once to deal with the matters that may come up, and will have power to send delegates to the Winnipeg Conference.

MISS WATSON, Guelph: I have not had much time to consider this matter. I would like to ask are these 17 representatives out of office now or must they be elected?

MRS. TODD: The three from Eastern Ontario are still in office, as they have not held any convention to change them. The three from Western Ontario are still in office, as they have not had any convention. The eleven Central Ontario representatives have to be named at this Convention.

MR. PUTNAM: May I state, Madam President, in answer to Miss Watson's question that we in the Department are anxious, in the meantime, to have a representative committee which we believe can be secured best in the way in which the Chairman of the Resolutions Committee has just stated.

We would like a committee of workers, of the people themselves, to meet with occasionally and discuss matters of mutual interest.

14. We, the members of the East Harwich Women's Institute would like to submit the following resolution to the Convention:

Resolved, that we think it would be very advisable in the interest of sanitary and moral improvement of our schools to appoint two ladies on the public school boards besides the three men trustees. Carried.

15. We, the Ontario Women's Institutes in Convention assembled, representing 30,000 of the rural women of Ontario, realizing the importance of children being brought up under their mothers' care, would ask our Governments to institute a system of allowances to needy mothers. Carried.

16. We wish to record our grateful appreciation of the able services of the late Miss Susie Campbell. Carried with standing vote.

17. That we desire to send greetings from this Convention to Miss Guest, our representative in England. Carried.

18. In view of the fact that district organization is being made more complete, efficient work can be done only with additional grant, and we would recommend that a Special Committee be appointed to formulate a definite basis. Carried.

19. That the Convention wish to express its thanks to Principal McKay and all who have helped to make the convention a success. Carried.

20. Whereas the ignorance of the public in regard to Home Nursing is appalling, as evidenced during the influenza epidemic, be it resolved that Home Nursing be placed on our public school curriculum, that our Model and Normal Students be thoroughly trained in same, and that this course be given careful inspection by our School Inspectors. Carried.

21. That the following resolution from Thunder Bay District be adopted as in the best interests of that section of the Province:

"Whereas, at the present time there is great need in the District of Thunder Bay for a woman representative to assist and instruct the wives of the farmers and pioneers along agricultural lines, and so as to insure the greatest possible production, thrift and economy in the management of the farms and homesteads of this district,

"Therefore, the Women's Institutes of the District of Thunder Bay, petition the Premier and the Minister of Agriculture for the appointment of such woman representative (preferably a woman from this part of the Province) who is well versed in these subjects—such representative to act among the women in a similar capacity to that of the present District Representatives of the Department of Agriculture. Carried.

22. And finally, the committee wishes, on behalf of all members of the Women's Institutes of the Province of Ontario, to most heartily endorse the words of appreciation expressed in a resolution from the Thunder Bay District of the work accomplished under the able leadership of our Superintendent, Mr. Geo. A. Putnam, and considering the extent and importance of the work done by Mr. Putnam, and considering the great problems of reconstruction now before us, the women of the Institutes now assembled, petition the Government to make such increase to the salary of our Superintendent as shall assure us of his continued leadership of the Ontario Women's Institutes—the phenomenal growth of which has been largely due to his untiring efforts and his executive ability. Carried with great applause and the singing of "For He's a Jolly Good Fellow."

Moved by Mrs. Fowler, seconded by Mrs. Brethour, that the Provincial Committee provided for in the report of the Resolutions Committee be empowered to nominate two delegates to the meeting of representatives of the Women's Institutes and similar organizations throughout the Dominion called to meet in Winnipeg next week to consider the formation of a National Federation, and that the persons so named be submitted to the whole convention for approval. Carried.

OCCUPATIONAL THERAPY.

MAJOR BAILEY, COLLEGE STREET, HOSPITAL, TORONTO.

I take great pleasure in addressing you this afternoon on a subject which is of great interest to us at the College Hospital, and it is going to be of vital interest to all in the Dominion—Occupational Therapy in reference to Nervous Diseases.

Nervous diseases, as found in the army, are largely those found in civilian life, that is, you get the same parallels. The so-called shell-shocked man, you have in average life, only he gets it from a different source, and it is called a different



Weaving scarfs, towels, etc. This stimulates mental occupation.

name, and it is on behalf of the shell-shocked man that I want to talk to you to-day. I want to tell you exactly what shell-shock really is so that you will know how to treat a shell-shocked man properly. Never give him sympathy; that is one thing he wants and which he is not to get, and at the same time cut out the words, cripple, disabled and affliction. Sir Arthur Pearson said St. Dunstons never got anywhere until they cut out that word, affliction.

The Canadian army was formed of men from all walks of life, from the tramp to the \$100,000 a year man. The next point to consider about the army is, why did the men enlist? The vast majority enlisted from the best of reasons—patriotism for their country and to protect their women folk; but a certain percentage did not enlist for these reasons, and quite a few of these are our shell-shocked

men. Patriotism is simply a fully developed herd instinct. Why do all animals congregate together? For protection and various other reasons, and that is what patriotism is. Some men got drunk, and when they wakened up, they found themselves in the army, and have been sorry ever since, and such men often became shell-shocked. True shell-shock is a nervous breakdown, due to the great strain the man is under, the responsibilities he has, and personal worries concerning his home or finances. Such a case is easy to cure; take him out of the lines, send him to shows, and give him a few detective stories to read.

The next type is the neurasthenic, and it is easy to understand what he is. Your man goes to France and he has all kinds of discomforts; your soldier tells you only a quarter as bad as they are. Then they are up against something else—they are in danger all the time, and the greatest instinct of all is manifest, the instinct of self-preservation. The man is under the emotion of fear all the time,



Motor mechanics at work. This is a great stimulant and a very successful therapeutic measure.

and the man who admits he is scared is not going to be shell-shocked. The neurasthenic says, "I am not scared," and he refuses to think about it. In refusing to think about it, he is attempting the impossible thing. Anything that concerns your life you cannot refuse to think about; if you do, that is a repression, and you go to pieces and go to pieces very fast. That is what happens to your neurasthenic. He will turn up his collar or hide under a sheet, under a machine-gun barrage or shrapnel barrage. He is no longer a thinking man; he is under the instinct of self-preservation. There is a fight going on between the herd instinct and the instinct of self-preservation. Another big thing comes out here: He says he is afraid, and he is afraid of being afraid, and he says, "I am a coward." Now, the poor chap is not a coward at all, and that is why he gets shell-shocked. He cannot recognize the difference between fear and cowardice. Fear is an emotion that we all have; it may not be caused by a Bosh bullet, it may be only a burglar or a man under the bed, but fear is there. This man is a pretty good

man; but he is usually a man who has dodged the heavy responsibilities of life. He is a man who will go around a block to avoid meeting somebody he does not like; he has followed the path of least resistance. He mixes up fear and cowardice and cannot think out the difference.

Your hysteric is not quite as good a type of man, and yet he is not deserving of the usual slur that is attached to an hysterical person. He goes through the same process as the neurasthenic, but he gets a pain in his back or thinks he does, and his sub-conscious brain says, "You have myalgia; you cannot move you back." Promptly he does not move his back and he does get it. The man is not conscious of that. A nice easy explanation of his condition is, he is an unconscious malingerer or sub-conscious malingerer. That is your hysteric.

Take the three types. In England they get the sympathy that I am asking you not to give. Instead of getting into the atmosphere of encouragement that



Nervous and insane patients learning basketry. This photo shows one insane patient, two severely paralyzed, and one with a gunshot wound in the head and paralyzed.

a man should have, he is left around and put in a hospital and does nothing. He has admiring friends; he is a Canadian and he deserves everything the English people can give him, and they do give generously. It is the most harmful thing he can get. Finally he lands in Canada. At the College Street Hospital we get men from Military District No. 1, and No. 2 and as far east as Kingston. We have them start to work, and that is where occupational therapy comes in.

The work is divided into various types: there is, first, ward occupation. If a man's temperature is normal he has to work. We do not care whether he is sick in bed or not, he goes to work, and you would be surprised how well they like it, once they get started. The next is occupational therapy, which is divided into two branches: straight cure of a disabled condition, and the curing of a mental condition only. Personally, I have no use for the curative stage: I think it is approaching the thing from the wrong angle. I will illustrate that by this: A

man with a bad knee or ankle is put on a bicycle and allowed to ride; he has no objection and he gets on and rides, but instead of thinking about getting better soon, he is thinking about that knee or ankle. At College Street our method is different. We put that man on a treadling machine with a fret saw, and then we hand him a square box and say, "Go to work and make your wife a nice box," and the first thing we know, that man is turning out a scrawl box and has forgotten all about that knee or ankle, which gets better about five times as fast. Instead of thinking what a badly disabled man he is and that he is entitled to a good Government job, he now says, "I wonder what I can do in civil life?" And the first thing we know is, that he comes to us and says, "I want to learn so and so, will you teach me?" I assure you we grab that man quickly and teach him.

As long as the work is instructive and appeals to the man's constructive ability, it is suitable. Get the spirit of competition going, and it will give you results. At College Street we teach certain things, the first is basketry, and I brought this work to show you.

Major Bailey then showed samples of the men's work in basketry, wood carving and inlay, hammered brass and copper and bead work, and told stories of the men who had produced these specimens of art craft.

NATIONAL INSTITUTION FOR THE BLIND.

MR. SWIFT, OF THE INSTITUTE OF THE BLIND, TORONTO.

I feel that I am not an entire stranger in this room nor before this audience. Two years ago I had the pleasure in company with Corp. Veits, P.P.C.L.I., of addressing the delegates of the Central Ontario Women's Institutes. I then told you about the work of the Canadian National Library for the Blind, but now I wish to outline the work of a much larger organization—The Canadian National Institute for the Blind, of which the Canadian National Library is now the library and publication department. The organization was chartered by the Federal Government on the 30th of March, 1918, and its purpose is the centralization or naturalization of effort for the blind, and it has already done a tremendous amount of work along that line. In the last six months, it has done more for the cause of the blind than any organization in a similar length of time anywhere else in the world. That is a considerable feather in our cap.

The work is entirely national; it has affiliated with it almost all of the local organizations for the blind in the country, and I may say that in addressing you, I am talking to partners in this work. Your Superintendent, Mr. Putnam, is your representative on the Council of the Canadian National Institute for the Blind; so, ladies, you cannot get away from it, you have to help us.

Our work consists of several Departments. In the first place we have our Library Department which has been in operation for the last 12 years and has supplied the blind of Canada with more than 70,000 volumes in the Braille type. It also has furnished a great number of games for amusement, and cards, and so forth.

Pearson Hall, which is our headquarters, follows the work which Major Bailey has told you about in Occupational Therapy for a number of our blind men. These men make baskets and trays which I venture to say equal anything turned out of the College Hospital, and a number of these men have been placed in normal

life again by Occupational Therapy and are now studying poultry farming at the Ontario Agricultural College. The course is managed by the Department at Ottawa, but the text books and apparatus for taking notes on the course are supplied by the Canadian National Institute for the Blind.

Pearson Hall, at 186 Beverly Street, Toronto, is a resident club and training school for a number of blind soldiers. We have nine men in residence now, and we just sent five the other day up to Guelph. We sent two men out a couple of weeks ago, one to take a position as a masseuse in the Military Hospital in Halifax, and the other a similar position in a Military Hospital in Calgary. I would advise you all to go to Pearson Hall and see the work we are endeavouring to carry on.

Then we have for our civilian blind a shop on King Street which is now employing 18 blind men. Most of these men had earned nothing regularly in years, and they are now getting a new grip on life.

We have on Adelaide Street West, an Industrial School for blind women, the first of its kind established in Canada. We now have 14 women there, most of whom have never earned a cent in their lives before.

Our men are receiving \$7 a week from the time they enter the shop. Our women are paid \$6 a week, and also go on piece rate wages when they learn their various trades.

Then again, we have our Home Teaching Department, which supplements the work of our field agent. Our field agent travels all over the Province of Ontario, and here is where you can help us. We want you to send in to 36 King Street East, the names and addresses of all blind people in your district. Our field agent will visit these parties, take their histories and give them advice with regard to employment. Their histories are all filed and gone over carefully and wherever possible, employment is given. Our Home Teachers follow up the agent and give instruction in the Braille System of reading, and, crocheting and sewing for women, and chair caning and other things for the men. We have a number of home teachers in Toronto; one in Hamilton; one in Winnipeg and one in Vancouver.

We are just about to open a very important department under the management of a thoroughly trained and competent lady, that is a Department for the Prevention of Blindness and the Conservation of Sight. Nothing of that kind has ever been done in Canada as a nation, although something of the kind has been attempted in the Maritime Provinces.

In the majority of our departments women are employed as far as possible, not always blind women, because we find far better results from employing women than men. Their sympathy, tact and encouragement are far more conducive to arousing a sense of interest in the blind subject.

I want you to go to your homes and be missionaries for the Canadian National Institute for the Blind, not in any sense of cutting out any other work, but, you can help us, too. In Ottawa we are beginning Industrial work for the blind and we would ask you to help these shops as much as possible, as well as those of other cities.

MR. PUTNAM: I am very glad indeed that we have made a beginning in Provincial organization. We have a committee of seventeen, which was chosen, we believe, in the best way possible on this occasion. They are, with some additions to their number, if they so desire, to formulate a plan for immediate action. We will co-operate with the Provincial Organization in sending out the necessary literature and direction, so that the people themselves can form a permanent

Provincial organization upon a plan which is acceptable to all the Institutes. This organization is to be entirely separate from the Department of Agriculture. Of course we will work with the organization. The Department has a certain service to perform, certain literature to distribute, lecturers and demonstrators to send out, and so forth, and we will continue this service, but there are certain things which you want to carry on on your own initiative and by your own action. We will assist you all we can, and I hope you won't want much assistance, because as I tried to outline in my address, the strength of the Institute depends largely upon local action and initiative, bringing out local talent and utilizing to the best advantage the forces which you have.

So far as the Department is concerned, we want the assistance of this committee of seventeen. The success of the medical inspection work depends almost wholly upon the co-operation and the action of the Women's Institutes. Medical Inspection or a health campaign of any sort cannot be made of the greatest value without local initiative, the creation of local sentiment in favor of the work and interesting local people to follow up the recommendations which the inspectors may make. It is not a matter of merely inspecting the children, but it is, we believe, the beginning of a general health campaign, with the co-operation of the Department of Agriculture, the Department of Education and the Provincial Board of Health in seeing to it that the child has a fair chance.

Then we will hold a meeting of lecturers, and we want this committee to meet our staff of lecturers early in April or March with a view to discussing very fully the place of the Institute in connection with work for soldiers, educational matters, and health problems, and to formulate definite plans for our summer series of meetings which we believe will be the most important series of meetings that have ever been held in the Province of Ontario, both from the standpoint of interest and from the standpoint of possible benefit to be derived therefrom.

We should inaugurate an aggressive campaign in extending the field of the Institutes and increasing the number of organizations. I believe the day is coming when every school section or community, taking in two or three school sections, will not be able to render the best or get the best public service without an Institute through which to carry on the work.

Then there are the girls. We want to attract the girls to the Institute, not only attract them, but to give them something of real value. The future of the Institute depends upon the girls of to-day, and the girls' work of the future depends upon the children of to-day who are going to be treated or examined in the schools. If it is known by the children that the Women's Institutes have made medical inspection possible for them, they will be supporters of the Institute; and if the girls get instruction, such as the class we had here yesterday is getting in West York, they are going to be supporters of the Institute in the years to come.

Might I express my appreciation of the resolution passed this morning regarding my service to the Institute. I, of course, appreciate this very, very much, and all I can say is, that while I am paid as a Government official for what I do, I am just as much interested in it as you are, and I look upon it as an organization of which I am a member and not a paid servant. I am very glad indeed to assist you in whatever way I can to make your work a success. You can depend upon it that I will stand by the Women's Institutes, because I think there is no better organization, no better body of women in the country, and I am sure that there is no organization through which more good can be done, not only for the present but for the years to come. Let us be frank, and let us co-operate in an earnest endeavour to make the Institutes what they are capable of becoming.

MRS. TODD: You remember this morning we laid one resolution aside until after we had heard Mrs. Hamilton speak to us this afternoon. This resolution we now bring before you: "That the resolution of the Central Dumfries Women's Institute asking this Convention to petition the Government to grant universal Suffrage to women before the next election be laid aside as not coming within our jurisdiction."

DR. PATTERSON: I have an article which says: "*You have a vote in the Provincial Elections* if you are 21 years of age, a British subject and resident in Canada for one year, and in the electoral district for three months before the election. This election takes place every four years unless for some special reason.

"*You have a vote in the Dominion Elections* if you are on the voters' list of your province. See that your name is on that list. This election takes place every five years."

Q.—How do we know we are on the voters' list?

DR. PATTERSON: It rests with each person to see whether or not her name is on the voters' list. There is certainly some one in each town or locality who looks after the voters' list.

A MEMBER: The voters' lists are posted in certain lawful places where everyone can see them; it is every person's duty to see whether her name is on or not. If it is not, you can apply to the Court of Revision, and you will be placed on.

MRS. TODD: There is one resolution that reached me only at noon to-day, and it is very interesting to me. I will read this resolution so that you will be able to discuss it at some future time. It is asking the Convention to put itself on record in regard to the placing of women in the Courts of Justice when children, or especially young girls, are up for trial. This is a matter of very grave importance to the moral health of our land.

I want to thank you very much for your courtesy to me as Chairman of the Resolutions Committee. The resolutions came in in good shape, which has been a great help to us. Had they all been in before the Convention started, it would have been still easier for your Committee to deal with them in a business-like way. I thank you very much for your courtesy.

"WHAT FARM WOMEN ARE DOING."

MRS. J. PATTERSON, GADSHILL.

The farm women have always worked hard with few intermissions and little recreation, and if the hard places have been made easier and the long way shortened, the Women's Institute is largely the medium through which it has been brought about, with its lectures and demonstration courses that have been of untold value to these shy, unassuming women who were being drawn out of themselves so that they found expression through the channels of this organization. Apart from household economy, the discussions have developed along the lines of child-welfare, medical inspection in our rural schools, the social side in rural life, and education. I want to say that the hay-seed farmer and his wife are long gone by, if ever there were such; but it took the women of the Institute to convince the world of that fact.

Let us go back some 25 years when many of you splendid women of the farm, full of ambition and high ideals, placed your hand in that of your life partner's

to start out together in the making of a new home. When you bought that farm, what planning together for planting and improving, and for paying for it all. Perhaps, nowhere as on the farm is the word co-operation better understood, and nowhere does the woman play so important a part. She recalls the struggle in helping to pay for that farm at 6 per cent., when wheat was somewhere about 68c. a bushel; oats as low as 17c.; horses, the best, not over \$100, and cows around \$25. They may well have been at a loss how to meet their obligations. If a horse or other animal died, there was no insurance to replace the loss, and they did die, you may be sure. It was by no means plain sailing. Up at five o'clock in the morning and often busy till nine at night. She knew what it was to milk anywhere from five to ten cows (when there was no one but husband and herself on the farm), strain that milk into coolers—for there were no cream separators then, skim all that milk with a perforated little skimmer, and churn the cream, which, when taken to the market, brought 15c. a lb. or even less. It required considerable milking and churning to pay even \$25 for a cow. There was no ladle or print, and the butter worker was unheard of. How the women would work that butter with their hands in almost ice cold water and turn out neat little rolls! No wonder they suffered with rheumatism in later years! How she would put several milkings together, some skimmed and some new, to make her own cheese, without the aid of a thermometer. She would put it in the clean wash boiler on the stove, add rennet, (not the little tablet kind that is on the market to-day, but the product of a calf or sheep's stomach of their own raising) watch it heat, and when curdled, cut it up with the big knife, draw off the whey, then salt and pack it in cheesecloth and put it in the old wooden press. It was a common thing to have from 6 to 12 of these, 15 or 20 lb. cheese in the store room. Her business, was, and is still, to feed her household, no matter what other work was on, in which she shared.

When the annual butchering day came round in the winter, she knew how to get the casings ready for those yards and yards of sausage. That butcher day is still a big day on the farm, when neighbours are called together and set to work with good natured raillery a plenty. There is the fry sausage to make and also the summer sausage. The sides and hams must be trimmed just so, and there is lard to be rendered to a creamy white. Then comes the packing of it all, and, where we at one time covered everything with immense quantities of salt to preserve it, we now pack the raw sausage into sealers, fasten the tops down, partially, and place in the boiler and boil for three hours. This is as fine in flavor as when first made and ready for summer use. The hams are sugar cured, a process of ten to twelve days, then they are ready to smoke and dry, after which they are ready and do not require to have all the strength extracted to get the salt out. Then, that dressed beef which used to be frozen or corned, is now cut into slices small enough to pack into sealers, with a teaspoon of salt on top and tops fastened down partially. These, too, are boiled for three hours in the wash boiler and now she has her summer's beef, perfectly sweet and fresh, at less than half the price she would have to pay at the meat wagon which comes to her door once a week. Besides the first cost, it is always cooked, and saves fuel and time in the hot weather, when she is busy out of doors. We say "Out of Doors," why she lives out of doors! The farm woman always has a large garden and may become a slave therein instead of a help-mate. If she must have the square garden and dig it all herself, with nice paths running both ways, and keep that hoed and cleaned all summer, she is very likely to become the slave of her own doings,

whereas, she might better spend much of that time in the corn field or root patch, and there be a real help-mate.

However, the long garden, ploughed and planted in rows and scuffled, is fast taking the place of the old one. She has her cold frame or "hot-bed" whichever you like to call it, in a warm sunny spot nearby. Here she starts her lettuce and cabbage early in the season, possibly, the first week in April and in less than four weeks she has crisp lettuce and tender onions for table use. She sees to it that there is a patch of berries and small fruit near the house, and when the nursery man calls she always adds an extra tree or two of cherries, plums or pears, thereby redeeming the cost of her fruit a trifle. "Economy," you say! Economy is the new word for save and is considerably more fashionable. Nevertheless, the old word "save" is born into every child on the farm. They are raised on it every day of their lives. The idea used to be, to save in material only. To-day the saving of time and energy all becomes a necessity. The day of the washboard is long past and the hand power washing machine is fast going the same road. The little 1½ horse power gasoline engine, with shafting and pulleys fastened to the ceiling in the summer kitchen or woodshed, runs a larger washing machine, cream separator, and churn all side by side, simultaneously, and when wash day is over, she is not so tired as to be irritable, but is fresh and ready to help in the barn or field if need be.

Talking of machinery, the little knitting machine is not the least of these. The demand for socks during the war period led the busy women to seek the speedier method here, too. If she could do a sock in less than half an hour by machine, why spend hours! And now, that this need is not so pressing, she turns to her family knitting of socks, children's stockings, possibly a yard in length, and all kinds of footings, down to her own priceless cashmere hose. The knitting machine has come to stay and ought to find a place on the community basis in every Institute.

We think of the farm woman making soap in earlier days. She would collect her hard-wood ashes of the winter in barrels or troughs for the purpose. In the spring, water was put in this and the lye was gathered from this process. Then it took a day to boil down this lye to get the desired strength and another two days or more were spent in producing desirable soap. To-day she knows that a few pounds of lye which may be bought for a few cents will bring the desired result in four or five hours.

Economy has become an art with the farm woman. If she finds a mouse has got into her cream can (something that seldom happens) she does not rush the whole of that cream into the swill pail. No! She just quietly churns it, puts it into the cellar and next time someone goes to town, she orders a quantity of lye, and the whole is turned into a fine lot of soap. Perhaps, some Monday morning the milk can comes back from the cheese factory with all those two days' milk, just slightly acid, not thick; she runs it through the cream separator, then churns it, and turns it into soap, or if clean-flavored, churns it.

It is not unusual to see the incubator on the farm and this becomes the work of the woman also. She brings out of that wooden hen, anywhere around 80 per cent. of very much alive little balls of fluff, by the running of two, three or four hatches in a season. These little birds need a good deal of care before they are ready for market. When Rock hens can be secured, they make good step-mothers and the work is not so great. But possibly, "old biddy" is wandering all over the place, when suddenly a thunder-storm comes up and you rush out to hunt

the little brood, and before you find them you are drenched through, but never mind, so long as the chicks are saved, it's all in farm life. Next day, it may be, another storm comes up, and you do not find your little flock, and when all is over, "biddy" comes round with less than half the hatch. The old adage "Don't count your chickens before they are hatched" might well be put "Don't count them before they are raised." She must also know how to turn out good apple butter, and if apples are scarce, to know how to make a similar product for her table out of the ordinary field mangel.

And so, we might go on, enumerating the endless round of duties that day after day unfold in the farm woman's life.

We recall the many splendid women, who, within the past four and a half years, took their part in the field with the hoe, the pitch-fork, the team and in many other ways. These women did not intend to let the slacker and the alien get three dollars a day with board and bed here in our land, while their loved ones were in the battle line in France at one dollar and ten cents with board and no bed: nor did they sit down to weep and pray; their slogan was, *work* and *pray*. Do you wonder that they gripped that hoe more firmly and pitched more determinedly in order that they might hold together that second line trench.

We think of our farm daughters, many of them attending the halls and academies of learning here in your city, coming back to the old home, when the need arose, getting on to the riding plough or cultivator behind a prancing team of spirited horses, and, if the father, the only man on the place, took ill and could no longer attend to his thrashing engine, his accomplished daughter stepped on to that puffing, snorting thing, and guided it from farm to farm in the neighbourhood, never leaving it till all was thrashed. And why should it not be just as good fun to grip the lines and guide those fine horses that respond to your every touch, up and down the field, as to guide the automobile over our roads. I'll warrant, you'll get no more bumps in the first than in the last. In each you get enough to keep you from going to sleep.

And why should anyone hint at drudgery when a woman is seen with the hoe, any more than one with the golf stick; each in her turn is developing the delicate young woman of 115 to 150 lbs. And with all this, she finds time, as you all know, to attend meetings and conventions and take her part in patriotic work. The farm woman has come very close to nature in God's wonderful creation of the things around her.

What woman does not like to go and pet the gentle mare and her frisky colt, and, when milking the cows, to give them an extra pat on the neck, and so on, till she is surrounded by that barn-yard medley of geese, ducks, turkeys, and chickens! If she does not find happiness in this, she has missed her calling.

Then the sighing of the wind in the big maples and the nodding to each other of the tall spruce trees and their whispering in the wind, and the bird life calling to each other in their branches around her door, who does not find a language in all this!

When the long winter evenings come, this Institute woman of the farm is found happily occupied with a paper or magazine informing herself on the questions of the day, and she will bring her influence to bear on many things such as, the consolidated school, where her family will receive an education equal to that of the city children, and still have them under the home influences while they are so young. She sees the need of having medical school inspection enforced, and the advisability of having an Institute member on the rural school board. We think

the time is not far distant when every school section will have its own institute branch that will take over the duties of visiting the schools regularly, and, if possible, promote, where needed, sanitary conditions. Few of us would be willing to live in homes where the floors are scrubbed only twice a year, yet we raise no cry when our children must spend several years at school under such conditions.

Women of the Institute, have we got a vision of the enormous problem of reconstruction, the building anew of this fair Canada of ours. The men at the head of affairs are not going to accomplish this stupendous work alone. Are we ready, every woman of us, as individuals and collectively in our organization, to keep our shoulder to the wheel?

What about the woman here of foreign birth, and the many more who will come to our shores from yonder war ridden lands! Are we going to pull our skirts aside and pass her by, or, have we enlarged sufficiently to grip the situation, and draw her into our circle, that she may, in time, become a good Canadian citizen? The church will never reach this stranger with all her superstition, and if we fail, she, with her usually large family, will eventually rule.

We think of a man in this city who must have had a vision over fifteen years ago of the glorious possibilities of organized rural women in Ontario. Think you, he saw dimly that these women would so nobly rise to the call of their country when the password "For Home and Country" was made the motto. Are we going to measure up?

The Convention closed by the singing of the National Anthem.

SPECIAL ARTICLES.

RURAL HYGIENE.

DR. MARGARET PATTERSON, TORONTO.

One thinks of the country as the place of Health. The city dweller looks forward to a trip to the country to regain the vitality that has been lost through too close confinement in office or flat. Certainly the country with its spring water, green vegetables, newly laid eggs, fresh milk and best of all its open spaces, should be the most healthful place: but such is not the case. We find that the country children in spite of all the healthful advantage of the country are not on the average as well developed either physically or mentally as the city children. This I believe, is largely due to the fact that city children receive so much more scientific supervision and have any physical handicaps removed and remediable defects corrected and through the medical school inspection and the work of the school nurses are taught the simple rules of personal and home hygiene. We hope that rural school inspection will do as much for the country child. Another fact that should receive attention is that the percentage of communicable diseases is greater in country than city and that most of the cases of typhoid can be traced to a source of infection in the country. The causes of this are not hard to find and are very easily corrected and I know we have only to explain them to the country people and they will soon be removed. As a country woman, I am sure that when the country people are given the same health education as the city people have had for years, the country will soon free itself of the causes of "Health Waste." The house fly is a source of annoyance to every housewife and is the greatest spreader

of disease known and is an absolutely unnecessary and preventable thing. The fly by choice selects horse manure as its breeding place and deposits its eggs there. In fourteen days these have developed into a fly. If the manure, instead of being piled up and allowed to remain near the stable door, were drawn away, once a week, and spread on the land, not only would the land receive more benefit from the manure as a fertilizer but the danger of disease is removed, for when manure is allowed to remain in a pile "to rot" most of the substance of greatest benefit to the land is washed out of it and carried off by the barnyard drain and is lost as a fertilizer, whereas if the fresh manure is spread on the land the ground gets the benefit of this and the fly does not have a chance to develop in it. Flies are a much greater menace to the health and future of our country than were the German submarines and exact a greater toll of life every year than the submarines did during the whole period of their activity.

Another source of infection in the country is the "closet." Often one sees these closets which are cleaned only once a year, with no screens on them, offering free access to flies. Usually the closets are within easy "flying distance" of the house, and the fly goes right from these filthy heaps to the food and infects everything it comes in contact with. Those who have made a careful study of the matter claim that 38 per cent. of the deaths of babies under two years of age can be traced to infections carried by flies. How easy it would be to have the closet so arranged that the "pans" could easily be removed and cleaned frequently, have ashes or dry earth for each person to sprinkle over its contents each time it is used, and have the window screened and keep the door shut. When the "pan" is emptied the contents should be buried in shallow trenches where the sun rays can fall upon it and be covered with earth or wood ashes. Human manure should not be used as a fertilizer in less than three years, as it often contains germs that infect vegetables, etc., grown in the ground fertilized by it if it is used in less time than that.

The care of the milk is a very important thing and cannot receive too much attention. Only a few of the most obvious rules to observe can be mentioned here. Milk is a "culture medium" for germs and almost every known germ will develop quickly in milk. To prevent the development of bacteria, milk should be thoroughly chilled at once. Everything around where milking is done should be clean, and all utensils used to hold milk should be scalded before being used. It is a very dangerous thing to leave milk pails in the stable, and the separator should be carefully washed and scalded after each use. Never leave it from the evening to the morning milking in the stable, for the cleanest stable contains many germs that develop in milk, causing the milk to spoil quickly and these also give rise to digestive troubles in children. The water supply of both family and stock should be pure. If cattle drink contaminated water the milk may contain the germs and thus convey them to human beings.

Needless to say strict cleanliness is necessary in the preparation of all food. Vegetables that are to be eaten uncooked should be thoroughly washed and all foods must be protected from flies. The entire house should be screened. Let plenty of fresh air and sunshine into all parts of the house. Live as much as possible in "God's beautiful out of doors." Never allow anyone to come to the table with unwashed hands. Teach the children that "their life is often in their own hands, and to save their life they must wash their hands." Never put anything in the mouth but food. Keep the skin of the entire body clean and brush the teeth carefully every night before going to bed. Take a good big drink of water first thing in the morning and cultivate regular habits. In order to be healthy one

has only to come to terms with nature. Nature's terms are very simple, viz.: regular habits, fresh air and sunshine, cleanliness, plain wholesome food, proportionate work, rest and play. Grown ups as well as children need a certain amount of play to keep them normal.

PHYSICAL DEVELOPMENT.

ELIZABETH HARCOURT, R.N.

From the period of infancy to the 19th or 20th year there is a gradual development from the mere tissue organs of the new born to organs with decided function.

The elements of mature organism are stored up in the little frame and come forth as their corresponding functions are brought into being and action.

This human body has to provide:

1. FOR EXISTENCE.—To carry on the vital processes of nutrition and excretion.
2. FOR GROWTH.—It has to provide for the modifications of structure and function. These changes are due to the development of the organic and structural parts and functional modifications.
3. FOR REPRODUCTION.—The legacy of life must be protected and preserved as a link in the continuous chain of life.

The efficiency of the human body depends on the right action of all the vital organs and tissues; those tissues on whose activity all other tissues depend, as the heart, digestive glands and the air cells of the lungs, and as the activity of one tissue depends on the activity of every other tissue in the body, the physiological process then, absolutely determines the efficiency of the human machine.

These physical processes, to act under the best conditions, must be made the object of conscious attention.

Why? Because of the great changes in man himself and in his life and environment. Man to-day has a complex and difficult problem from the standpoint of physical growth and health.

It is difficult because of: The rapid changes in the environment and the demands upon the nervous system; the limitations of freedom of bodily action and *lack of a purpose in nutrition.*

To enable the child's body to provide for existence it must have nourishment, oxygen, sleep, exercise and skin kept clean.

Foods have to be grouped according to age, activity and race, and should be eaten regularly, slowly and thoroughly chewed.

Great as is the hunger for food, there is still a greater hunger in the body than that for food. Although the human body breathes automatically, we do leave part of the lungs unused, and they should be kept in a healthy state by exercise.

The unused part is more susceptible to disease.

Hindrances to good breathing: 1. Tight, ill fitting clothing, that is, that pulls down on the shoulders, or is too heavy. 2. Improper standing and sitting positions, etc. 3. Catarrh, which is caused by a lowered vitality, aided by indigestion, fatigue, poor circulation, dust, and is favoured by colds. The nasal membrane's strength is lowered by these bodily conditions, and thus an unhealthy state is developed.

Oxygen starvation is caused by the filling up of the nasal canals by catarrhal discharge and by adenoidal growths, etc.

Fatigue, a state of always being over-tired, causes bronchitis, then the lowered tone of the bronchial tubes allows of the opportunity for disease germs to develop.

The lungs at birth are very small and have not been used. The greatest growth of lung is up to the time of puberty, while the heart begins to grow quite rapidly after puberty.

The heart is therefore not as strong in childhood as in the adult. It is easily strained, and has not strength of muscle or enduring power. Especially is this true during adolescence. The flow of blood is hindered and the vessels directly injured by restriction of the vessels, standing for long intervals, and lack of thorough exercise; indirectly, by lacing shoes too tightly, by having garters around the legs, by having waistbands too tight, and constipation.

Sleep is absolutely necessary and a sufficient number of hours, with windows wide open, to give time for rest and repair work.

To study the increase in height, weight, and chest measurements are the best criteria of health and vigor and should be done from babyhood up.

Health and vigor do not depend upon bulk. A well proportioned body is more important than bulk.

If height, weight and chest girth increase unequally, then the proportions must be different at different ages. This difference will affect the child's vigor and allow of a weak resistance to disease.

Muscular exercises and development exercises involve sensation, thought and action. The nerves and muscles cannot be separated. The intelligent guidance of muscles is of greater importance than the muscle itself. The young child up to six years does not usually need guided exercise, their play is sufficient exertion for the heart and lungs.

As activity affects bone growth, we need to assure ourselves that the six year old child is getting muscular exercise sufficient for the development of the limbs, for the muscle development aids in the skeletal growth. Children need running, climbing, hanging, jumping. These will give sufficient deep breathing. Usually forced breathing is not necessary up to the 12th year.

Posture is essential; standing at drill; at attention when reciting; position at desk, at rest; sitting drill, and vigorous exercise after sitting to relieve pressure parts of legs, and change circulation in feet, etc.

Other Injurious Habits.—Smoking, thumb sucking, self abuse, damp boots and clothing.

The Needs.—Well organized educational baby clinics up to two years of age, managed by thoroughly up-to-date medical doctors. These should be carried on twice a year during the 3 years to 6, when the child enters school, when his growth and health should be closely watched by trained people.

VALUE AND CARE OF MILK.

J. H. SCOTT. OFFICIAL BUTTER GRADER.

It matters not what our station in life is, whether we live in city, town, or on the farm, we are, or at least should be, interested in the production of milk in its most palatable, wholesome, and sanitary condition.

Milk is one of the staple foods on our Canadian tables, and its products are used in such a multitude of forms, that its value concerns every one. The fact that it is so common a food, perhaps, is a reason why more study is not given to the need of care in production and handling of it. We are told that "familiarity breeds contempt," and it may be true in the general attitude towards milk. Then there is the danger, that those handling milk, either at the producer's end, or, at the consumer's end of the trade, do not understand the susceptibility to contaminations of milk and its products, and that those handling milk do not realize the changes that take place in milk, causing souring and other fermentations.

The general public seems to be ignorant of the value of milk and milk products, from a nutritive standpoint, especially for young and growing children. We pay the high prices for most food commodities in these days of high prices without questioning, but, when the price of milk is advanced, we are apt to think that there is profiteering being practised on us. If we take comparative food values into consideration we will be compelled to acknowledge that milk at even the present abnormal prices is cheap in comparison with many other foods. For instance, Prof. Washburn of the Minnesota University says that with porterhouse steak at 30 cents per pound, milk is worth 20 cents per quart, according to food or nutritive value; that with eggs at 45 cents per dozen, milk would be worth 32 cents per quart; with fish at 20 cents per pound milk would be worth 35 cents per quart, &c. This being so, and we have no reason to doubt the figures, for they are only bearing out statements made by other scientists, we see that milk is at the present prices one of the cheapest foods that we have offered to-day. In view then of the fact that it is cheap and that it is almost indispensable on our table, is it not important that we should learn at least the fundamental principles in regard to best methods of producing and caring for it, at whatever stage we happen to have that responsibility.

On a great many farms milk is handled in a very careless and indifferent manner. Especially is this true where "Dairying" is a sideline in the programme of the farm. Very little care is taken to protect it from unsanitary influences. With the exception of a few feed flavors, such as rape, turnip and weeds, practically all our bad flavors in milk originate with some form of bacteria, or germ life. They are introduced usually in the form of dirt of some kind, badly washed utensils, dirty milking, dust or dirt allowed to get into the milk about the stables, or in transit, or by absorbing odors from being left in close proximity to stables or other foul smelling conditions.

It is impossible to produce clean, sanitary milk from dirty cows in dirty stables, so that, first of all, we must prepare conditions before commencing to milk. Milkers should be clean, and should not wear, as is often the case, the dirtiest clothes that can be found. All these precautions should be taken to prevent dust and dirt from falling into the pail during the milking process. In order to facilitate this a covered milking pail is recommended. Many types are on the market and are all quite practical when put in use.

Milk should be removed immediately after milking, away from the stable to clean surroundings free from dust and bad odors. It should be strained at once. Under good conditions there will be plenty of bacteria laden dirt or sediment get into milk to seed it with bad flavor, producing germ life. The next thing to do is to control what has unavoidably reached the milk, and it is well to remember that under the best and most sanitary conditions, it is impossible to produce milk absolutely germ free, but by careful, cleanly methods, good results are obtain-

ed. Organisms or bacteria, develop very rapidly at temperatures suitable for their growth, therefore it is necessary to reduce the temperature below that at which there will be least development, the temperature cooled to depending on the length of time milk is to be held before being used or manufactured; if for immediate use, or for holding just over night, as in the case of milk for cheese making, cooling the night's milk to a temperature of 60° F. will be quite satisfactory. If it is to be held for longer periods, lower temperatures will have to be used, depending on the requirements, always bearing in mind that the lower the temperature, the slower will be the development of germ life. There are, therefore, just two things or principles to remember and put into practice in caring for milk, no matter for what purpose it is going to be used, viz.,—cleanliness and cooling.

The method of cooling will depend largely on the facilities for cooling. For temperatures not lower than 50°, where there is plenty of good well water, that will be all that is required, providing of course there are facilities for using the water. A simple and efficient method is to provide a box large enough to contain the cans required to hold all the milk to be handled. The box need not be an expensive kind, but simply water tight and as deep as the milk requiring cooling will be in the cans. The water is pumped in at one end, being conducted to the bottom of the tank. The outlet for the overflow should be at the opposite end and as high as the milk is in the cans, so that as the water is warmed by the milk it will not be mixed with the cold water coming in. For economy of water, this cooling tank might be situated between the well and the stock trough. If lower temperatures than 50° are required, or in the case of scarcity of water, then it will be necessary to use ice. Ice can be used in the same box by putting it in the water.

In caring for cream, the same method is adopted. The storage capacity for cream, of course, will not need to be nearly so great. In the handling of cream, each skimming should be cooled before adding to former stock on hand. In caring for either milk or cream, any method that will cool, and cool quickly, will most likely give good results. Cooling will not be efficient unless it is done quickly and before there has been development of acidity or bad flavors.

There is a tremendous loss taking place in our province every year by the production of poor flavored butter; losses that if they could be computed would be startling. These losses are preventable. The cow gives the milk in perfect condition if she gets a chance; then why do we not use all our efforts to prevent them?

THE CLAIMS OF THE CHILDREN.

MR. J. J. KELSO, SUPERINTENDENT, NEGLECTED AND DEPENDENT CHILDREN,
TORONTO.

A fine young man having very honorable scars on his head and face received at the battle front in France, called at the Children's office to report his return to civilian life, having been released from further service on account of his injuries. He is now about twenty-six years of age and has just taken a position as agent for a manufacturing concern.

This young man, and his case is typical of others—was received when he was three years old, there being absolutely no one to take the slightest interest

in his welfare. The father had deserted the wife and child, and the mother, after a struggle with poverty and grief, passed away, leaving the child alone in the world. With a little inquiry, a good foster home was found where the boy remained for twelve years. It was not a wealthy home, the people had barely enough of this world's goods to keep the roof over their heads, and their total income rarely amounted to more than \$500 per annum. They cultivated a few acres around their simple home, but they were steady, industrious people, and they instilled these virtues into the boy. Although they must often have been tempted to keep him home to assist in the work, they were faithful in sending him to school, with the result that, to-day, he has a good education that enables him to earn anywhere from \$25 to \$50 per week.

These humble people who did so much for the boy, also did an equally important and valuable service for the Province, and they deserve far more appreciation and recognition than they will ever receive from either the boy or the country, but they have written that their reward has been in the knowledge of a young life sheltered and guided in the time of need and successfully launched on the journey of life.

Thinking of this incident, recalls to mind, hundreds of similar stories of children who have been placed in homes by adoption through the Children's Aid Societies and have grown up under various interesting circumstances, and are now to be found in varied and widely divergent callings.

Perhaps a few notes about the principles underlying work of this kind may be helpful to social workers who are now or, in future years, may take up this line of public service.

When the Children's Protection Act was drafted in 1892 it was intended that the Children's Aid Society should be the official body under which would be grouped and promoted the philanthropic activities of the State, the municipality and the benevolently inclined. There will never be a satisfactory solution of the child problem until there is in every community a central executive or council carefully studying the interests of the children, and promoting their best interests in every way. All who are interested enough to assist in child-welfare work should be linked up in some way with this council, so that no child, and no cause affecting the child, shall be overlooked. This can best be done through the Children's Aid Society,—broad and comprehensive in its aims and having the strength of a parliamentary Act and an organized system of guidance behind it.

WHAT IS A NEGLECTED CHILD?

The Children's Act thus defines a neglected child:

(h) "Neglected child" shall mean a child who is found begging, receiving alms, thieving in a public place, sleeping at night in the open air, loitering about in a public place after nine o'clock in the evening, associating or dwelling with a thief, drunkard, or vagrant, or is an habitual truant, or a child who by reason of the neglect, drunkenness or other vice of its parents is growing up without salutary parental control and education, or in circumstances exposing such child to an idle and dissolute life; or who is found in a house of ill-fame, or known to associate with or be in the company of a reputed prostitute; or an orphan, or an illegitimate child whose mother is unable to maintain it; or who is deserted by its parents; or whose only parent is undergoing imprisonment for crime; or who by reason of ill-treatment, continual personal injury or grave misconduct or habitual intemperance of its parents, or either of them, is in peril of loss of life, health or morality; or whose home, by reason of neglect, cruelty or depravity, is an unfit place for such child, and "Neglected Children" shall mean two or more of such children.

STREET TRADES.

The Act also states:

Section 16. No girl under sixteen years of age and no boy under ten years of age shall engage in or be licensed or permitted to engage in any street trade occupation.

CHILDREN OUT AT NIGHT.

Sec. 17 which, however, is rarely enforced, says:

17.—(1) No child shall loiter in any public place after 9 o'clock in the evening, or be there unless accompanied by his parent or guardian or an adult appointed by the parent or guardian to accompany such child.

SAFEGUARDING THE HOME.

The main object of the many excellent provisions of the Children's Act is to enforce upon all parents and guardians responsibility for the proper upbringing of their children. Prevention is the keynote and watchword of the entire system and is its proudest boast of achievement. Homes made better by timely intervention is the aim and motto of all Children's Aid workers.

HOMES FREELY OFFERED.

When children have to be taken by the Children's Aid Society, all other efforts having failed—the order of Commitment is made by a Court of law, with due deliberation, and thereafter the Society has full legal guardianship and control until the child is 21. Foster homes are found, and be it said to the credit of the people of Ontario, there has always been a ready response. Over twelve hundred foster homes are opened to these needy children each year, and a great benevolent work is done in maintaining and caring for this large family. Through the Central Office and the local Societies, personal visits are made at least once annually to these foster homes, and it is rare indeed that the child is found to be ill-treated or neglected. Where conditions are at all unsatisfactory steps are taken at once to apply the necessary remedy.

If space permitted, a hundred stories could be told of most wonderful developments—boys and girls enjoying advantages of refinement and comfort and becoming, not only worthy citizens, but often educated as professional men, and girls by marriage entering into positions of great influence. The main consideration, however, is that they are once and forever removed from the ranks of the submerged, to be industrial units in our advancing civilization.

The Children's Aid Societies are in close touch with the various social movements which they have pioneered: Playgrounds, abolition of the slums, medical inspection and treatment, dental care, segregation of the feeble minded, humane methods of dealing with youthful delinquency, aid and encouragement for worthy mothers, etc.

There is an organized Children's Aid Society in each County and district and all friends of the children should be in touch with what is going on. While the head office is at 153 University Ave., the following Inspectors give all their time to the active work in the various Counties where they reside.

CHILDREN'S AID OFFICIALS.

County.	Agent	P.O. Address.
Algoma	J. P. Reed	S. S. Marie.
Brant	J. Leslie Axford	Brantford.
Bruce	Rev. A. Perdue	Walkerton.
Carleton	John Keane	Ottawa.
Dufferin	Miss S. Hughson	Orangeville.
Elgin	Mrs. E. H. Caughell	St. Thomas.
Essex	W. F. H. Hackney	Windsor.
Fort William	Frank Blain	Fort William
Frontenac	Alex. Jack	Kingston.
Grey	A. E. Trout	Owen Sound.
Haldimand	C. R. Bilger	Dunnville.
Hamilton	J. C. Pinch	Hamilton.
Hastings	T. D. Ruston	Belleville, Box 46.
Huron	G. M. Elliott	Goderich.
Kenora	Mrs. Lowry Johnson	Kenora.
Kent	W. R. Baxter	Chatham.
Lambton	John Wilkinson	Sarnia.
Lanark	W. Hyndman	Smith's Falls.
Leeds & Grenville	Alex. Beattie	Brockville.
Lennox & Addington	W. F. Barrett	Napanee.
Lincoln	R. E. Boyle	St. Catharines.
London	W. E. Kelly	London.
Middlesex	Jos. Sanders	London.
Nipissing	W. W. Ryan	North Bay.
Norfolk	D. E. McIntosh	Simcoe.
Northumberland & Durham	T. D. McCullough	Port Hope.
Ontario		Oshawa.
Oxford	Mrs. A. M. Pedley	Woodstock.
Parry Sound E.	John Hart	Burk's Falls.
Parry Sound W.	Joseph Ryder	Parry Sound.
Peel & Halton	C. W. Norton	Brampton.
Perth	Hugh Ferguson	Stratford.
Peterborough	Geo. W. Powell	Peterborough.
Port Arthur	Geo. Gibbon	Port Arthur.
Prescott & Russell	John Hartley	Vankleek Hill.
Prince Edward	Geo. Hubbs	Picton.
Renfrew	Rev. W. M. H. Quartermaine	Renfrew.
Simcoe	W. J. Justice	Barrie.
Stormont, Dundas & Glengarry	T. W. Ault	Cornwall.
Sudbury	Geo. Elliott	Sudbury.
Temiskaming	Robert Le Heup	Haileybury.
Victoria	Mrs. E. E. Sharpe	Lindsay.
Waterloo	Arthur Pullam	Hespeler.
Welland	John Flower	Welland.
Wellington	Amos Tovell	Guelph.
Wentworth		
York	R. P. Coulson	Toronto,
		57 Adelaide St. E.
Toronto C.A.S.	Wm. Duncan	Toronto, 229 Simcoe St.
St. Vincent de Paul	J. A. Hyland	Toronto, 25 Shuter St.

MEMORANDUM *RE* SERVICES OF THE PROVINCIAL BOARD OF HEALTH.

The services offered to the people of Ontario by the Provincial Board of Health may be summed up under the following headings:

(1) DISTRICT OFFICERS OF HEALTH: The Province has been divided into seven districts in each of which has been placed a duly qualified medical practitioner who is held to a certain extent responsible for the sanitary conditions,

acting in conjunction with the medical officers and other officials of the local boards of health. The District Officers at present are as follows:

1. Vacant by death of Major Bentley, M.D., Sarnia.
2. Dr. T. J. McNally, 50 Stanley Street, London.
3. Dr. D. A. McClenahan, 204 Herkimer St., Hamilton.
4. Dr. George Clinton, Belleville.
5. Dr. P. J. Moloney, Cornwall.
6. Dr. W. E. George, North Bay.
7. Dr. R. E. Wodehouse, Fort William.

(2) **THE SANITARY ENGINEERING DIVISION:** This work is under the supervision of the Provincial Sanitary Engineer. An experimental station was established some years ago and has been used for the study of problems relative to sewage and water, etc.

(3) **THE LABORATORY SERVICES:** The Provincial Board of Health has laboratories situated in the cities of Toronto, Kingston and London, where specimens of various kinds, samples of water, sewage, milk, etc., are examined free of charge if sent through the proper local authorities.

(4) **THE DISTRIBUTION OF BIOLOGICAL PRODUCTS:** Since 1916 the following have been supplied to the public through local boards of health, free of cost: Diphtheria Antitoxin, Smallpox Vaccine, Anti-meningitis Serum, Tetanus Antitoxin, Typhoid and Para-Typhoid Vaccine, Pertussis (Whooping Cough) Vaccine, Silver Nitrate Solution for the Prevention of Babies' Sore Eyes, Pasteur Preventive Treatment for Rabies. In this connection it may be mentioned that at the outset of the war the Dominion Government was without facilities for the supply of typhoid vaccine, and Ontario's Board of Health alone of all the provinces had such facilities. Since that time the Board has supplied gratuitously to the Department of Militia and Defence about \$250,000 worth of typhoid and para-typhoid vaccine, which has proved an invaluable aid in the prevention of enteric fevers among the soldiers.

(5) **CHILD WELFARE BUREAU:** The Board is prepared to help local agencies in the establishment of child welfare work and for this purpose has an exhibit which is sent upon request and without charge. The exhibit comprises posters on infant and child care, a model layette, etc., and is in charge of a competent supervisor who is also a licensed operator of moving pictures. The Board has secured about sixteen films upon general health subjects which are shown in connection with the exhibit. A qualified trained nurse accompanies the exhibit, and is prepared to give demonstrations of bathing, clothing and feeding the baby.

(6) **DISTRIBUTION OF LITERATURE:** The Board has published pamphlets upon the various branches of public health work which are supplied free upon request.

PUBLICATIONS OF THE PROVINCIAL BOARD OF HEALTH, ONTARIO.

Annual Report of the Board.

The Public Health Act.

Statutes of Ontario respecting Water Works and Sewerage Systems (Leaflet).

Regulations and Application Form for approval of Water Works Systems and Extensions.

Regulations and Application Form for approval of Sewerage Systems and Extensions.

Regulations of the Board, No. 1, containing:

1. Table of Quarantine.
2. Regulations for the Control of Communicable Diseases.
3. Smallpox Regulations.
4. Regulations respecting Lumber, Mining and other Camps, and Sanitary Conditions in Unorganized Territories.

5. Regulations for Control of Tuberculosis.
6. Statutes respecting Sanitary Precautions in Health and Summer Resorts and upon Boats plying on the inland waters of Ontario.
7. Regulations respecting Sewage Disposal in Summer Resorts.
8. Regulations for Control of Inspection of Meat.
9. Regulations respecting Burials and Transportation of the Dead.
10. Regulations respecting the Providing of Pure Drinking Water in Public Places.

Regulations of the Board, No. 2, containing:

1. Regulations respecting proper receptacles for and removal and disposal of manure.
2. Regulations respecting Slaughter Houses when not under Government inspection.
3. Regulations respecting Slaughter Houses and Abattoirs when under Government inspection.

Regulations of the Board respecting Undertakers.

Leaflets and the Circulars *re* Communicable Diseases:

A Little Talk About the Baby.
 Diphtheria Antitoxin.
 Value of Anti-Typhoid Vaccination.
 Prevention of Typhoid Fever.
 Infantile Paralysis.
 Venereal Disease.
 Influenza.

- Cir. 20 Diphtheria.
 21 Scarlet Fever.
 22 Typhoid Fever.
 23 Measles.
 24 Smallpox.
 25 Consumption.
 25a Consumption—Personal Precautions.
 25b Consumption—General Precautions.
 26 Vaccination.
 31 Mosquitoes and How to Prevent them.
 32 Facts About Flies.
 35 A Simple method of Water Purification.
 38 The Best Foods to Buy During the War.
 39 Sewage Disposal.

Copies of any of these publications may be procured upon application to—

JOHN W. S. McCULLOUGH, M.D., D.P.H.,
 Chief Officer, Provincial Board of Health,
 Toronto, Ont.

CHILD WELFARE.

DR. NAISMITH, DUNBOYNE.

The limits of this paper will not permit of going into the subject exhaustively. Books might easily be written dealing with the varied phases of this all-important question and still have something to be considered along the same line. I merely want to throw out a few hints which may set some of you thinking, and working in the interest of the young in the community, and to begin with, permit me to remark, that I think, in this part of the North American continent, the children are not numerous enough. I think the birthrate in Ontario is lower than it should be, and the death rate of infants has been much larger than I hope it will be in the future. Of the causes of this unsatisfactory condition, I shall not attempt to deal to-day.

They are many, some are uncontrollable, but I believe an improvement is possible if we give the matter the attention it deserves. Has it never been a question with you why a home that has all the necessary comforts and conveniences for the welfare of the child, should be a childless one, or at most, the home of one or two children, when the home of poverty is often swarming with lusty youngsters? Also, why the mortality of children under five years of age should be so great? It does not appear that much general interest in this subject began before the twentieth century and at first applied only to diseases of childhood which carried off those between the ages of three months and three years. Now, however, research work is going on along this line, and the welfare of the unborn, as well as, that of the "tiny spirit fluttering for an instant in the threshold of its little prison and then unconscious of captivity takes wing and is gone."

I wish to say, here, that every child has a right to be well-born, to have his surroundings or environment of the best possible, and that his early training for a useful life should be such as to produce a sound mind in a sound body.

As a health officer of Bayham, it is my duty and privilege to have an oversight of all matters that affect the health of the community, and more especially of the children in the municipality. All I have to say in that regard is what might apply to all rural and village communities through Western Ontario. Socially, morally and intellectually, we are not perfect, but I believe we are mending our ways in some respects, and I hope the next generation who will soon take our places will be an improvement on the present one.

In the statement that the child has a right to be well born, there arises a number of questions of various relations which it would be out of place to deal with, at this time and place, but it will be readily seen that the subject of heredity is implied, and looms large in this connection. I am not one of those who believe a child inherits a vicious and degraded nature with the same unchangeable permanence as blue or brown eyes, or light or dark hair. What I have in mind here is more from the standpoint of mental and bodily health, and I would insist on such a condition of society that there should be no babies born of mentally defective, or feeble-minded men and women. It has been observed that the children of such, in the vast majority of cases, are no improvement on that of the parents, especially when the training is left in the hands of such parents, as is usually the case until they have committed some crime, or have become a nuisance to the community. I think these persons should be confined in colonies by themselves, not permitted to become parents. The cost of keeping these unfit citizens in institutions by themselves, it has been computed, would not be greater than that of imprisoning them and their offspring after they have become criminals. Besides being more economical, it would be more merciful and human. An eminent criminologist, for many years connected with the prison at Sing Sing, made an investigation into the parentage of many of the inmates of that institution, and was astonished to discover a number amounting, if I remember rightly, to over one hundred, who traced their descent from an old couple of feeble-minded criminals of New York City, through either the father or mother. How much wiser it would have been to have prevented those old wretches from marrying; their children not being well-born.

Another class, examples of which most of you will be able to recall to mind, is the children of paupers and vicious criminals, who inherit the lack of energy of the former, and criminal tendencies of the latter. They start life with a serious handicap, and though mentally capable of earning an honest living, their

inclinations lie in the opposite direction. They claim the world owes them a living, without working for it, and are without any moral sense of right or wrong. In short, without conscience. When detected in crime, and punished for it, have no intention of reforming, but become more hardened and determined to repeat the crime on first opportunity. Many of this class had better never been born at all, than being so ill born, they are handicapped in the race of life and left behind by the well born child.

The offspring of the leper, the syphilitic, or otherwise diseased parents, as also the child of the physically degenerate, are in many cases a pitiable sight and in the struggle for existence are easily overcome by the more strenuous of the well-born.

Of equal importance to being well-born, is being well brought up, or in other words the child's environment, his right to healthy surroundings, food, clothing and education. It would require more time than either you or I have to deal thoroughly with these subjects, so I must briefly outline my opinion of what would be correct and reasonable, as far as present conditions and circumstances permit. We are told that in Germany the child as soon as he reaches the age of five, becomes a chattel of the state, which employs the parents and guardians to care for him according to rules laid down for them by the Government. He is told that he himself is of no importance only so far as he is useful to the state—the welfare and happiness of the individual is of minor importance and must be at all times subordinate to the welfare of the fatherland. This is not our view of training the young. We take the opposite estimate of the aim and object of the government, namely, that the latter exists for the former, that governments are formed and upheld for the comfort, peace and happiness of the individual, believing that this object is best attained when the child has a good home and lives there, loving and being loved, by the other members of the family.

It goes without saying, that the child's home should not be a place where dirt and disease are the normal conditions. Pure air, pure food and cleanliness are the right of all young children. Parents and guardians who ignore these essentials are blamable, and should be told so; though we have all known instances of robust manhood result under circumstances differing from this standard, it will readily be agreed to, that these were exceptions, and not the rule. They seem to have been immune and thrived in spite of adverse conditions owing to having been well-born.

The question of food is a large one, and is very much in evidence at the present time. Old and young get instruction from Ottawa as to the quantity and quality of the food they should and should not eat. Obviously, these commands are viewed from a different angle by people in different parts of the country. We think, taken altogether, these instructions are not unreasonable, and if carried out to the letter, would benefit the race both old and young; but the food of the child is a fruitful source of trouble to the nurse and a cause of no end of anxiety to the doctor also. Perhaps a little starvation would be a benefit in many instances, and I am fully convinced I have seen cases where it is much desired by the physicians, for the fond mother is liable to overdo the feeding both as to quantity and quality.

The same remarks would apply in regard to the clothing of the child. It is often much overdone; and ignorance and slavish submission to fashion has ruined many a child's health. Without entering into details, I would merely say the clothing of the child should not be such as to interfere with his activity. If it is a question of being tidy and quiet and still, or untidy and tumbling on the floor or the ground, I hold up both hands for the latter. Let the child play.

The education of the child is a large subject and has been exhaustively dealt with by able men and women who have given the matter much thought and care. The Provincial Government has, from time to time, laid down rules for the guidance of trustees and teachers in the training of children, fixed a standard for the teachers in training. Permit me to remark in passing, that I consider the public school curriculum too rigid. I think there should be more elasticity in the qualifications for promotion, allowing for individuality. A child who shows proficiency in arithmetic for example, should not always be held back until he shows the same advancement in grammar as the other members of the class. The human minds cannot all be moulded to the same pattern as in the manufacture of bricks. I think the aim and object of the public school be to "educate," leading the young minds to think, to form character even if they do not pass the written examination successfully.

Again if the child's health is in danger from too much school work, I would advise taking him from school for a long period even if he should be in danger of growing up quite illiterate. I consider health of more importance than book knowledge. A healthy man or woman with average horse sense, will be able to make a good living, where the scholar whose life is made uncomfortable through ill-health is a pitiable object. Let the child have plenty of out-door play even if the school tasks are neglected. Give your teacher to understand that you wish the pupils to show character of which the parents are proud even if they never pass the Entrance Examinations.

The importance of your work cannot be over-estimated. You are leaders of thought in the community and an example to the younger girls. I hope you fully realize your accountability. We look to you for light in many social conditions, on the questions of sanitation and pure food. Your opportunities for doing good are greater than male officials. Women are ideal sanitary inspectors and are eminently qualified to find cases of infractions against the laws of health, and for showing to others an example of interest in their welfare. We fear to contemplate what would be the condition of orphans or other neglected children if left to the tender mercies of mere male officials.

REPORT
OF THE
WOMEN'S INSTITUTES

OF THE
Province of Ontario
1918

PART II
List of Meetings and Speakers

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

PRINTED BY ORDER OF
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Women's Institutes of Ontario

SUMMER SERIES OF MEETINGS

ANNOUNCEMENT OF SUPERINTENDENT, 1918.

This volume, Part II, of the Women's Institute report, contains announcement of summer series of Women's Institute meetings, together with list of speakers and their subjects. A report of the Conventions held during 1917, together with statistical statement for the year 1916-17 and some special articles will be found in Part I, a copy of which will be sent to each member of the Institute.

While the conditions last year were such that the women of the rural districts had to devote a great deal of their time to agricultural work, still the patriotic work increased rather than decreased. Besides the numberless bales of clothing that were sent out for relief purposes, both local and otherwise, the cash given alone by the nine hundred branches amounted to over \$250,000. There has been no falling off in the number of socks, shirts and Red Cross goods going out from each branch every month, and it seems hardly necessary to emphasize the fact that the Red Cross and patriotic work should be increased, yes, doubled, if possible, this year, for we know every woman realizes that, with the almost constant fighting since early spring, every hospital and convalescent home is filled to overflowing with wounded soldiers who must receive proper attention. The Red Cross warehouses are being depleted rapidly and, unless they are replenished immediately and constantly, our boys are going to die for want of proper care.

The Institutes Branch has secured from the Red Cross Society copies of "War Work" and the Red Cross Bulletin, which have been mailed regularly to the presidents and secretaries of all branches throughout the year and from which full information regarding the needs of the Society may be secured.

The Institutes are very fortunate in being exempt from any registration under the War Charities Act of 1917, providing they furnish the Department from time to time with audited statements of receipts and disbursements for patriotic purposes.

This exemption, however, does not empower them to grant an approval in writing to other organizations or groups of people to raise money for any charitable purpose connected with the present European war. The Institutes may make collections, hold bazaars, sales, entertainments, exhibitions, etc., for the purpose of raising funds for whatsoever purpose they desire, but should indicate in their announcements, as far as possible, what the funds are to be devoted to.

A second call, equally urgent at the present time, is for food production and food conservation. There is a world shortage of food; the cause for which Britain and her allies fight hangs in the balance with food. If we fail them in this, the war is lost! We believe that every man, woman and child will do his or her bit to produce to the utmost, and in order that none of the perishable food produced shall be destroyed through lack of preservation, the Department is prepared to send out demonstrators who will assist the housewives by giving full information regarding the canning, storing, and drying of fruits and vegetables. The Department is also prepared to establish a limited number of community canning centres. An expert will be sent to inspect available accommodation and give directions as

to necessary alterations, and a demonstrator will be sent to assist in starting the work and to render further assistance, as occasion demands from time to time.

Keener interest has been taken during the past winter than ever before in the Demonstration-Lecture courses in food values and cooking, sewing, home nursing and first aid. These courses have been made as simple and practical as possible, the demonstrators keeping constantly before them present war time needs.

As a result of these Demonstration-Lecture courses many girls have been attracted to the Institutes and formed organizations of their own, either separately or as a subdivision of the local organization. The Department is now prepared to assist the girls in their work by grants, by literature, demonstrators, etc., and, as junior Women's Institutes, they will also be exempt from registration under the War Charities Act.

Another feature of Institute work which is receiving a great deal of attention at the present time is the medical inspection of schools. Two counties have been fully inspected and considerable work has been done in the Rainy River District. Following the inspection, clinics have been held in some places and, as a result, many children are in a healthier condition and marked progress has been noted in their school work. The Institutes branch is now prepared to assist the local branches in carrying on this work.

It is gratifying to the Department to note a gradual improvement in the business methods characterizing the work of the officers and the Department fully recognizes that the success accompanying the general work of the Institutes is due largely to the hearty, capable co-operation of the officers and members.

The success of the summer series will depend largely upon the plans made and advertising done by each branch concerned, with the co-operation and assistance of the district officers.

ADVICE TO DISTRICT OFFICERS.

The district officers are held responsible for the following:—

(1) To arrange and pay for transportation of the delegate while attending meetings where branches are established. The Department will bear hotel expenses at points where branches do not exist, for dates on which no meetings are announced and for over Sunday, also transportation from points where there is no organization and when going from one riding to another. When two delegates are sent to a meeting the Department will bear all expenses for one of them. The district officers can no doubt reduce the transportation charge considerably by co-operating with the branch officers in making and carrying out arrangements.

Send copies of advertising material to the delegate and give her information as to how to reach the first place of meeting in the riding and outline the arrangements made for transportation between places in the riding.

Notify the delegate as to when and where she will be met by the district officer or officers.

(2) Advertise all meetings. See pages 49 and 50 of Hand Book for directions.

Advertise for a definite hour, say 2.30 or 3 p.m.; and, if an evening instead of an afternoon session is desired, 8 p.m., and start the meeting at the time announced.

We strongly advocate an *afternoon meeting only*. Departmental delegates will not be available for Saturday evening meetings or more than one session at a place, except where special arrangements are made with the Department for the same.

Have a definite understanding with the officers at each point as to method and extent of advertising.

Utilize the local papers in advertising.

See that definite announcements are made in all advertisements as to hall or other place of meeting at each point.

Make your announcements for each session as full as possible, i.e., give the name of the speaker and the topic to be taken up.

Arrangements should be made with each branch secretary for each member to receive a notice of the meetings, and special invitations to non-members should be sent either direct to the individual or announced in the local press.

When meetings are announced for places at which there is no organization, pay special attention to the matter of advertising and see that definite arrangements are made for hall, entertainment, etc.

Arrange with the branch officers for a definite programme for each point. It would be well for one of the district officers to give a short address bearing upon the work of the district at each place of meeting, with possibly a brief paper or address by some local person.

ADVICE TO BRANCH OFFICERS.

Give your district secretary full particulars regarding arrangements for your local meeting, indicating the address, musical selections, or other assistance which will be given the delegate; also let the district secretary know what advertising you are prepared to do locally. See pages 49 and 50 of the Hand Book for advice regarding advertising. Urge your members to give invitations to other women in the district to attend the meeting.

The branches are responsible for the entertainment of the delegate, and it may be that they can render assistance in the *transportation* of delegate also. Notify the district secretary as to what you are prepared to do towards this.

See that the hall in which the meeting is to be held is properly cleaned, lighted and ventilated.

Write direct to delegate at least two weeks before your meeting is to be held, at her home address, or at some point in the series of meetings, notifying her of the topics chosen for your local meeting. *Notify the delegate* as to what provision has been made for her *entertainment*.

Announce only one session, preferably an afternoon meeting. The delegate will be available for two sessions only upon condition that considerable assistance is given at the evening meeting, and the consent of the Department has been secured.

Delegates are not prepared to attend Saturday evening meetings, except when special application is made to the Department for the same and permission given.

While lunches and picnics are an enjoyable feature of the summer meetings, the delegate should be given an opportunity for proper rest and regular meals.

GENERAL NOTES.

Ask questions at the meeting, not afterwards, when all will get the benefit of the answers.

Bring notebook and pencil with you.

If the Institute has been a benefit to you, ask others to join.

Women and girls over fourteen will be made welcome at the afternoon meetings. Both men and women and the young people are invited to the evening sessions.

While the Departmental delegates have an important part to play in making the summer series a success, a great responsibility rests upon the local officers in thoroughly advertising the meetings and in urging the members and their friends to attend. Do not fail to notify the delegates as to the arrangements which have been made for the meeting at each place.

The delegates who will attend the summer series of meetings will meet in conference at Toronto, with a view to receiving instructions and exchanging ideas regarding the work in hand. An exchange of views and experiences on the part of the workers and a general understanding as to the policy of the Department will tend to make the coming series of special interest and value to the members.

GEO. A. PUTNAM,

Superintendent.

SUMMER SERIES OF WOMEN'S INSTITUTE MEETINGS, 1918

In the following list "aft" indicates an afternoon session only—"eve" an evening session only. At other places it is expected that an afternoon session will be held and possibly an evening session. Local announcements will give full particulars as to speakers, subjects, hour of meeting, etc.

For subjects of speakers see pages 19 to 27.

DIVISION 1.—Mrs. M. A. Tomlinson, Simcoe.

1. Grimsby, Institute Room	Lincoln	aft.	May 27
2. Beamsville, Town Hall	"	aft.	" 28
3. Jordan, Victoria Hall	"	aft.	" 29
4. Niagara-on-the-Lake, St. Mark's Parish Hall	"	aft.	" 30
5. Queenston, Laura Secord Hall	"	aft.	" 31
6. Stamford, Southend School	Welland	aft.	June 3
7. Willoughby, Mrs. Thos. Morrison's Home..	"	aft.	" 4
8. Bowen Road, School House	"	aft.	" 5
9. Ridgeway, Library Room	"	aft.	" 6
10. Crowland, Township Hall	"	aft.	" 7
11. Fenwick, Public School	"	aft.	" 10
12. Quaker Road, Mrs. J. Goodwillie's Home..	"	aft.	" 11
13. Fonthill	"	aft.	" 12
14. Diltz & Moulton, Moulton Church	Haldimand	aft.	" 13
15. Attercliffe Station	"	aft.	" 14
16. Canfield, Methodist Church	"	aft.	" 17
17. Dunnville, Baptist Church	"	aft.	" 18
18. South Cayuga, Hall	"	aft.	" 19
19. Rainham Centre, Town Hall	"	aft.	" 20
20. Nanticoke	"	aft.	" 21
21. Varence, Private Residence	"	aft.	" 24
22. Cheapside, C.O.F. Hall	"	aft.	" 25
23. Garnet, Mrs. W. Christie's Home	"	aft.	" 26
24. Clanbrassil, Miss Harper's Home	"	aft.	" 27
25. Caistorville	Lincoln	aft.	" 28

DIVISION 2.—Mrs. K. B. Coutts, Thamesville.

1. West Hamilton	South Wentworth	aft.	May 20
2. Bartonville, Mrs. J. Carscallen's Home.	"	aft.	" 21
3. Winona, Institute Hall	"	aft.	" 22
4. Tapleytown	"	aft.	" 23
5. St. George, Mrs. W. H. Ker's Home	North Brant	aft.	" 27
6. Glen Morris, Central Hall	"	aft.	" 28
7. Blue Lake, Mrs. W. Little's Home	"	aft.	" 29
8. Paris, A.O.F. Hall	"	aft.	" 30
9. Moyle & Tranquility, School	"	aft.	" 31
10. Tutela, Bell Homestead	"	aft.	June 3
11. Grandview, School	"	aft.	" 4
12. Alford and Park Road, School	"	aft.	" 5
13. Echo Place, School	"	aft.	" 6
14. Cainsville, Mrs. H. Cole's Home	"	aft.	" 7
15. Langford, Mrs. H. M. Vanderlip's Home ..	"	aft.	" 10
16. Middleport, Mrs. Jas. Douglas' Home	"	aft.	" 11
17. Onondaga, Mrs. Chas. Edward's Home	"	aft.	" 12
18. Carluke, Mrs. L. Smith's Home	South Wentworth	aft.	" 13
19. Glanford, Methodist Church	"	aft.	" 14
20. Hannon	"	aft.	" 17
21. Mount Hamilton, Mrs. A. Inch's Home....	"	aft.	" 18
22. Binbrook, Masonic Hall	"	aft.	" 19
23. Blackheath, Mrs. Lute's Home	"	aft.	" 20
24. Abingdon	Lincoln	aft.	" 21
25. Wellandport, Mrs. J. H. Leeds' Home	"	aft.	" 24
26. Rosedene, Mrs. Chas. Mill's Home	"	aft.	" 25
27. Smithville, Brant Hall	"	aft.	" 26
28. Grassie	"	aft.	" 27

DIVISION 3.—Miss P. Gray, 253 Talbot St., St. Thomas.

1. Caledonia, Mrs. Hind's Home	Haldimand	aft. May 27
2. Hagersville, Hall	"	aft. " 28
3. Jarvis, Hall	"	aft. " 29
4. Selkirk, Baptist Church	"	aft. " 30
5. Fisherville, Mrs. W. Fess' Home	"	aft. " 31
6. Bingham Road, Town Hall	"	aft. June 1
7. Cayuga, Presbyterian Church	"	aft. " 3
8. Hartford, Hall	North Norfolk	aft. " 4
9. Windham Centre	" "	aft. " 5
10. Delhi, Morgan's Hall	" "	aft. " 6
11. Port Dover	South Norfolk	aft. " 7
12. Woodhouse	" "	aft. " 8
13. Walsh	" "	aft. " 10
14. Forrestville, Town Hall	" "	aft. " 11
15. Carholme, Silver Hill Hall	" "	aft. " 12
16. Lynedoch, Church	" "	aft. " 13
17. Langton	" "	aft. " 14
18. Fairground	" "	aft. " 15
19. Port Rowan	" "	aft. " 17
20. St. William's	" "	aft. " 18
21. Waterford, Town Hall	North Norfolk	aft. " 19
22. Simcoe, Baptist S.S. Room	" "	aft. " 20
23. Bealton	" "	aft. " 21
24. Kelvin	" "	aft. " 22
25. Tillsonburg, Mrs. J. B. Reed's Home	South Oxford	aft. " 24
26. Mount Elgin, Methodist Church	" "	aft. " 25
27. Springford, Baptist Church	" "	aft. " 26
28. Norwich, Presbyterian Church	" "	aft. " 27
29. Burgessville	" "	aft. " 28

DIVISION 4.—Mrs. H. W. Parsons, Grimsby Beach.

1. Straffordville, Church	East Elgin	aft. May 21
2. Bayham, Methodist Church	"	aft. " 22
3. Luton, Methodist Church	"	aft. " 27
4. Aylmer, Council Chamber	"	aft. " 28
5. Springfield, Muller's Hall	"	aft. " 29
6. Lyons, Hall	"	aft. " 30
7. Kingsmill and Mapleton, Miss F. Finch's Home	"	aft. " 31
8. Fingal, Town Hall	West Elgin	aft. June 3
9. Iona, Hall	"	aft. " 4
10. Wallacetown, Town Hall	"	aft. " 5
11. West Lorne, Opera House	"	aft. " 6
12. Rodney, Town Hall	"	aft. " 7
13. Highgate, Town Hall	East Kent	aft. " 8
14. Duart, Town Hall	"	aft. " 10
15. Palmyra, Hall	"	aft. " 11
16. Morpeth, Hall	"	aft. " 12
17. Botany, Presbyterian Church	"	aft. " 13
18. Thamesville, Methodist Church	"	aft. " 14
19. Bothwell, Town Hall	"	aft. " 17
20. Croton, Young's Hall	"	aft. " 18
21. Wabash	"	aft. " 19
22. Kent Bridge, Langford's Hall	"	aft. " 20
23. Comber, Town Hall	North Essex	aft. " 21
24. Maidstone, School House, No. 11	"	aft. " 24
25. Essex, Town Hall	South Essex	aft. " 25
26. Cottam, Methodist Church	"	aft. " 26
27. Oldcastle, Town Hall	North Essex	aft. " 27
28. Harrow, Methodist Church	South Essex	aft. " 28
29. Kingsville, Town Hall	"	aft. " 29
30. Leamington, Foresters' Hall	"	aft. July 2
31. Malden	"	aft. " 3

DIVISION 5.—Miss Janet Preston, Napanee.

1. Harwich East	West Kent.....	aft.	May 27
2. Harwich Centre	"	aft.	" 28
3. Rondeau, Private Residence	"	aft.	" 29
4. Cedar Springs, Methodist Church	"	aft.	" 30
5. South Raleigh, Presbyterian Church	"	aft.	" 31
6. Port Alma, Talbot St. Church	"	aft.	June 1
7. Thames River, St. Thomas Parish Hall ...	"	aft.	" 3
8. Tilbury, Methodist Church	"	aft.	" 4
9. Irwin, Hall	"	aft.	" 5
10. Bear Line and Dover, Hall	"	aft.	" 6
11. Pleasant Valley, Mrs. Hazzard's Home	West Lambton	aft.	" 7
12. Becher, Methodist Church	"	aft.	" 10
13. Sombra, Kelley's Hall	"	aft.	" 11
14. Wilkesport	"	aft.	" 12
15. Colinvile	"	aft.	" 13
16. Corunna, Mrs. Hicks' Home	"	aft.	" 14
17. Lucasville, Bunyan Baptist Church	"	aft.	" 17
18. Blackwell, Mrs. Beatty's Home, London Rd.	"	aft.	" 18
19. Bentpath, Mrs. A. McGuire's Home	"	aft.	" 19
20. Rutherford, Township Hall	"	aft.	" 20
21. Florence, Church	East Lambton	aft.	" 21
22. Shetland, Church	"	aft.	" 24
23. Aughrim, Private Residence	"	aft.	" 25
24. Alvinston, Private Residence	"	aft.	" 26
25. Watford, Armoury	"	aft.	" 27
26. Warwick, Hall	"	aft.	" 28
27. Jericho	"	aft.	July 2
28. Thedford, Rest Room	"	aft.	" 3
29. Brooke ..	"	aft.	" 4

DIVISION 6.—Miss H. Graydon, Streetsville.

1. Delaware	West Middlesex	aft.	May 27
2. Mt. Brydges, Town Hall	"	aft.	" 28
3. Glen Oak, Mrs. F. Fisher's	"	aft.	" 29
4. Appin	"	aft.	" 30
5. Middlemiss, Town Hall	"	aft.	" 31
6. Wardsville	"	aft.	June 3
7. Newbury, Town Hall	"	aft.	" 4
8. Napier, Town Hall	"	aft.	" 5
9. Kerwood, Mrs. A. Wood's Home	"	aft.	" 6
10. Strathroy	"	aft.	" 7
11. Belmont	East Middlesex	aft.	" 10
12. Wellburn	"	aft.	" 11
13. Birr	"	aft.	" 12
14. Lobo	North Middlesex	aft.	" 13
15. Komoka, Mrs. Stewart's Home	"	aft.	" 14
16. Coldstream, Town Hall	"	aft.	" 17
17. Beechwood, Forester's Falls	"	aft.	" 18
18. Keyser, Foresters' Hall	"	aft.	" 19
19. Parkhill, Rest Room	"	aft.	" 20
20. Ailsa Craig, Town Hall	"	aft.	" 21
21. Lucan	"	aft.	" 22
22. Granton	"	aft.	" 24
23. Clandeboye, M. E. Church	"	aft.	" 25
24. Exeter, Library	South Huron.....	aft.	" 26
25. Zurich	"	aft.	" 27
26. Blake, Private Residence	"	aft.	" 28

DIVISION 7.—Mrs. W. J. Hunter, Brampton.

1. Upper Hamilton, Barton Tp. Hall	South Wentworth	aft.	May 27
2. Ancaster, Mrs. R. S. Stevenson's Home	"	aft.	" 28
3. Stoney Creek, Parish Hall	"	aft.	" 29
4. Burlington, Public Library	Halton	aft.	" 30
5. Palermo, Mrs. P. Campbell's Home	"	aft.	" 31

6. Trafalgar, Township Hall	Halton.....	aft.	June 3
7. Omagh, Mrs. W. Howe's Home, 6th Line, Trafalgar	"	aft.	" 4
8. Esquesing	"	aft.	" 5
9. Bannockburn, Mrs. S. Lindsay's Home, 6th Line	"	aft.	" 6
10. Acton, Council Chamber	"	aft.	" 7
11. Ennotville, Library	Centre Wellington	aft.	" 11
12. Speedside, Sunday School Room	"	aft.	" 12
13. Ospringe, Mrs. W. Martin's Home	"	aft.	" 13
14. Coningsby, Mrs. Alex. McKinnon's Home..	"	aft.	" 14
15. Erin, Mrs. (Dr.) McCullough's Home ...	"	aft.	" 17
16. Hillsburg, Mrs. J. Carmichael's	"	aft.	" 18
17. Marsville, Mrs. J. K. Thompson's	"	aft.	" 19
18. Belwood, Town Hall	"	aft.	" 20
19. Cumnock, Presbyterian Church	"	aft.	" 21
20. Damascus	East Wellington	aft.	" 24
21. Kenilworth	"	aft.	" 25
22. Mt. Forest, Library Hall	"	aft.	" 26
23. Conn, Private Residence	"	aft.	" 27
24. Cedarvale	"	aft.	" 28
25. Guelph, City Hall	South Wellington.....	aft.	July 3
26. Rockwood, Friends' Church	"	aft.	" 4
27. Everton, Church of Christ.	"	aft.	" 5

DIVISION 8.—Miss M. Yates, Port Credit.

1. Lambton Mills	West York	eve.	May 27
2. Islington, Private Residence	"	eve.	" 28
3. Richview, Mrs. Robt. Wardlaw's Home	"	aft.	" 29
4. Thistletown	"	aft.	" 30
5. Edgeley, Private Residence	"	aft.	" 31
6. Vellore, Township Hall	"	aft.	June 3
7. Maple, Methodist Church	"	aft.	" 4
8. Kleinburg, Private Residence	"	aft.	" 5
9. Caledon, Town Hall	Peel	aft.	" 6
10. Alton	"	aft.	" 7
11. Belfountain	"	aft.	" 10
12. Inglewood, Methodist Church	"	aft.	" 11
13. Sandhill, Hall	"	aft.	" 12
14. Cheltenham, Private Residence	"	aft.	" 13
15. Brampton	"	aft.	" 14
16. Malton, Mrs. Garbutt's Home	"	aft.	" 17
17. Meadowvale	"	aft.	" 18
18. Streetsville, Oddfellows' Hall	"	aft.	" 19
19. Erindale, Church Hall	"	aft.	" 20
20. Lorne Park, Mrs. R. Taylor's	"	aft.	" 21
21. Dundas, Public Library	North Wentworth	aft.	" 24
22. Orkney, I.O.F. Hall	"	aft.	" 25
23. Waterdown	"	aft.	" 26
24. Freelon, Mrs. (Dr.) McQueen's Home	"	aft.	" 27
25. Kirkwall	"	aft.	" 28
26. Sheffield, Oddfellows' Hall	"	aft.	" 29

DIVISION 9.—Miss M. V. Powell, Whitby.

1. Winterbourne	North Waterloo	aft.	May 27
2. Linwood	"	aft.	" 28
3. Wellesley	"	aft.	" 29
4. Galt, Foresters' Hall	South Waterloo	aft.	" 30
5. Haysville, Town Hall	"	aft.	" 31
6. Preston	"	aft.	June 1
7. New Dundee	"	aft.	" 3
8. Central Dumfries, Mrs. J. Taylor's Home...	"	aft.	" 4
9. Branchton, Foresters' Hall	"	aft.	" 5

10. Burford, Mrs. J. E. Brethour's Home	South Brant	aft. June 6
11. Cathcart, Mrs. Kinsell's Home	" "	aft. " 7
12. Mount Pleasant, Mrs. J. Eadie's Home	" "	aft. " 10
13. Oak Hill, School House	" "	aft. " 11
14. Drumbo	North Oxford	aft. " 12
15. Embro, Town Hall	" "	aft. " 13
16. Tavistock, Library	South Perth	aft. " 14
17. Kirkton, Aberdeen Hall	" "	aft. " 17
18. Staffa, Township Hall	" "	aft. " 18
19. Mitchell, Mrs. A. Robinson's Home	" "	aft. " 19
20. Shakespeare, Temperance Hall	North Perth	aft. " 20
21. Hampstead, Miss K. McCallum's Home	" "	aft. " 21
22. Milverton, Library Hall	" "	aft. " 24
23. Millbank, Fewing's Hall	" "	aft. " 25
24. Listowel East, Mrs. R. E. Geoghegan's Home	" "	aft. " 26
25. Listowel West, Mrs. E. Weber's Home	" "	aft. " 27

DIVISION 10.—Miss E. M. Collins, Ancaster.

1. Drayton, Council Chamber	West Wellington	aft. May 27
2. Glen Allan, Private Residence	" "	aft. " 28
3. Moorefield, Township Hall	" "	aft. " 29
4. Rothsay, Orange Hall	" "	aft. " 30
5. Palmerston	" "	aft. " 31
6. Cotswold	Union	aft. June 3
7. Ayton, School House	South Grey	aft. " 4
8. Holstein, Roberts' Hall	" "	aft. " 5
9. Dromore, Taylor's Hall	" "	aft. " 6
10. Zion, Mrs. C. McClockin's Home	" "	aft. " 7
11. Durham, Library	" "	aft. " 10
12. Hanover, Public Library	" "	aft. " 11
13. Lamlash, Private Residence	" "	aft. " 12
14. Elmwood, Private Residence	" "	aft. " 13
15. Louise, Hall	" "	aft. " 14
16. Dornoch, Smith's Hall	" "	aft. " 17
17. Chatsworth, Orange Hall	North Grey	aft. " 18
18. Kilsyth, Hall	" "	aft. " 19
19. Salem, Mennonite Church	" "	aft. " 20
20. Owen Sound, Library Hall	" "	aft. " 21
21. Shallow Lake, Noble's Hall	" "	aft. " 24
22. Clavering, Church	" "	aft. " 25
23. Kemble, Public Library	" "	aft. " 26
24. Annan, Presbyterian Church	" "	aft. " 27
25. Bognor, Hall	" "	aft. " 28
26. Meaford, Town Hall	" "	aft. " 29

DIVISION 11.—Miss G. Gray, 650 Bathurst St., Toronto.

1. Kincardine	Centre Bruce	aft. May 27
2. Tiverton, Town Hall	West Bruce	aft. " 28
3. Port Elgin, Public Library	" "	aft. " 29
4. Arkwright, Church	" "	aft. " 30
5. Tara, Bailey's Hall	" "	aft. " 31
6. Willisroft, Baptist Church	Centre Bruce	aft. June 1
7. Paisley, Putnam's Hall	" "	aft. " 3
8. Narva	" "	aft. " 4
9. Walkerton	South Bruce	aft. " 5
10. Belmore	" "	aft. " 6
11. Teeswater, Town Hall	" "	aft. " 7
12. Holyrood, Hall	" "	aft. " 10
13. Lucknow, Council Chamber	" "	aft. " 11
14. Kintail, Hall	West Huron	aft. " 12
15. St. Helen's	" "	aft. " 13
16. St. Augustine, Mrs. W. McAllister's Home	" "	aft. " 14
17. Dungannon, Oddfellows' Hall	" "	aft. " 17
18. Goderich	" "	aft. " 18
19. Londesboro	" "	aft. " 19
20. Blyth, Oddfellows' Hall	" "	aft. " 20

21. Belgrave, Foresters' Hall	East Huron	aft.	June 21
22. Wingham, Council Chamber	West Huron	aft.	" 24
23. Brussels, Carnegie Hall	East Huron	aft.	" 25
24. Walton, Workman's Hall	"	aft.	" 26
25. Ethel, Dilworth Hall	"	aft.	" 27
26. Molesworth	"	aft.	" 28

DIVISION 12.—Dr. Letitia K. Sirrs, R.R. No. 1, Campbellville.

1. Clarksburg, Presbyterian Church	Centre Grey	aft.	May 27
2. Heathcote, Town Hall	"	aft.	" 28
3. Kimberley, Town Hall	"	aft.	" 29
4. Vandeleur, Foresters' Hall	"	aft.	" 30
5. Eugenia, Church	"	aft.	" 31
6. Maxwell	"	aft.	June 3
7. Badjeros, School House	"	aft. and eve	" 4
8. Hopeville, Hockridge's Hall	"	aft. and eve	" 5
9. Proton Station, Orange Hall	"	aft.	" 6
10. Flesherton, High School	"	aft.	" 7
11. Williamsford, Maccabees' Hall	"	aft.	" 10
12. Strathaven, Baptist Church	"	aft.	" 11
13. Walters' Falls, Town Hall	"	aft.	" 12
14. Parkhead	North Bruce	aft.	" 13
15. Hepworth, Down's Hall	"	aft.	" 14
16. Wiarton, Council Chamber	"	aft.	" 17
17. Mar, School House	"	aft.	" 18
18. Oliphant, Methodist Church	"	aft.	" 19
19. Colpoy's Bay, Cunningham's Hall	"	aft.	" 20
20. Hope Bay, Private Residence	"	aft.	" 21
21. Lion's Head, Centreville Meth. Church....	"	aft.	" 24
22. Spry	"	aft.	" 25

DIVISION 13.—Miss S. Campbell, 112 Oakwood Ave., Toronto.

1. Barrie	South Simcoe	aft.	May 27
2. Thornton, Temperance Hall	"	aft.	" 28
3. Cookstown, Town Hall	"	aft.	" 29
4. Newton Robinson	"	aft.	" 30
5. Alliston, Masonic Hall	West Simcoe	aft.	" 31
6. Stayner	"	aft.	June 1
7. New Lowell, Town Hall	"	aft.	" 3
8. Sunnidale Corners, Mrs. Buie's Home	"	aft.	" 4
9. Batteau, "The Cottage"	"	aft.	" 5
10. Singhampton, Orange Hall	"	aft.	" 6
11. Creemore, Town Hall	"	aft.	" 7
12. Duntroon	"	aft.	" 10
13. Avening, School House	"	aft.	" 11
14. Maple Valley, W. I. Hall	"	aft.	" 12
15. Ruskview, Orange Hall	Dufferin	aft.	" 13
16. Horning's Mills, Institute Hall	"	aft.	" 14
17. Orangeville	"	aft.	" 15
18. Corbetton, Methodist Church	"	aft.	" 17
19. Whitfield, Orange Hall	"	aft.	" 18
20. Shelburne, Town Hall (Dist. Annual)	"	aft.	" 19
21. Camilla, Presbyterian Church	"	aft.	" 20
22. Whittington, Methodist Church	"	aft.	" 21
23. Laurel, Methodist Church	"	aft.	" 24
24. Bowling Green, Mrs. W. H. Whaley's Home.	"	aft.	" 25
25. Colbeck, Hall	"	aft.	" 26
26. Waldemar, Presbyterian Hall	"	aft.	" 27
27. Grand Valley, Carnegie Hall	"	aft.	" 28

DIVISION 14.—Dr. Annie Backus, Aylmer.

1. Coulson's Hill, Church	South Simcoe	aft.	May 27
2. Churchill, Private Residence	"	aft.	" 28
3. Stroud, Church	"	aft.	" 29
4. Dalston, Methodist Church	Centre Simcoe	aft.	" 30

5. Edgar, W. Institute Hall	East Simcoe	aft. May 31
6. Mitchell Square	" "	aft. June 1
7. Guthrie, Church	" "	aft. " 3
8. Oro Station	" "	aft. " 4
9. Harvie Settlement, Private Residence	" "	aft. " 5
10. Orillia	" "	aft. " 6
11. Jarrett, Mrs. Chas. Cook's Home, Creighton.	" "	aft. " 7
12. Uhthoff, Private Residence	" "	aft. " 10
13. Price's Corners, McKinlay's Hall	" "	aft. " 11
14. Rama, Methodist Church	" "	aft. " 12
15. Washago, Union Church	" "	aft. " 13
16. Ardtrea, Mrs. Thos. Swindle's Home.....	" "	aft. " 14
17. Orillia, Girls' Inst. Meeting	" "	eve. " 14
18. Eady, Wesley Church	" "	aft. " 15
19. North River, Methodist Church	" "	aft. " 17
20. Waubauskene, I.O.O.F. Hall	" "	aft. " 18
21. Victoria Harbour	" "	aft. " 19
22. Penetanguishene, Town Hall	Centre Simcoe	aft. " 20
23. Wyebridge, Lummis' Hall	" "	aft. " 21
24. Birch, Mrs. Geo. Adam's Home	" "	aft. " 24
25. Wyevale, Presbyterian Church	" "	aft. " 25
26. Allenwood, Methodist Church	" "	aft. " 26
27. Crossland, Knox Church	" "	aft. " 27
28. Silver Maple, Private Residence	" "	aft. " 28
29. New Flos, Private Residence	" "	aft. " 29
30. Shanty Bay	East Simcoe	aft. July 11

DIVISION 15.—Mrs. F. W. Watts, 51 Chicora Ave., Toronto.

1. Pickering, Town Hall	South Ontario	aft. May 27
2. Brooklin	" "	aft. " 28
3. Shirley	" "	aft. " 29
4. Stouffville	East York	aft. " 30
5. Markham, Town Hall	" "	aft. " 31
6. Unionville, Victoria Hall	" "	aft. June 3
7. Agincourt, Heather Hall	" "	aft. " 4
8. Highland Creek, Mrs. G. L. Annis' Home...	" "	aft. " 5
9. West Hill, Mrs. A. Eade's Home	" "	aft. " 6
10. Lakeview, Mrs. H. Dix's Home, Stop 35, Kingston Rd.	" "	aft. " 7
11. Scarboro Junction	" "	aft. " 10
12. East Toronto, Y.M.C.A., Gerrard and Main Sts.	" "	aft. " 11
13. Thornhill	" "	aft. " 12
14. Vandorf, Mechanics' Hall	North York	aft. " 13
15. Pine Orchard, Union Meeting House	" "	aft. " 14
16. Mt. Albert, Methodist Church	" "	aft. " 17
17. Keswick, Mrs. J. Warriner's	" "	aft. " 18
18. Queensville, Methodist Church	" "	aft. " 19
19. Newmarket, Friends' Meeting House	" "	aft. " 20
20. Aurora, I.O.O.F. Hall	" "	aft. " 21
21. Kettleby, Mrs. Elliott's Home	" "	aft. " 24
22. Schomberg, Methodist Church	" "	aft. " 25
23. King East, Mrs. J. A. McDonald's Home ..	" "	aft. " 26
24. Laskay, Institute Hall	" "	aft. " 27
25. Nobleton, Music Hall	" "	aft. " 28

DIVISION 16.—Miss B. Duncan, 5 Ridout St., Toronto.

1. Brighton, Union Hall	East Northumberland	aft. May 27
2. Wooler, Methodist Church	" "	aft. " 28
3. Stockdale, Private Residence	" "	aft. " 29
4. Codrington, Orange Hall	" "	aft. " 30
5. Hilton, Town Hall	" "	aft. " 31
6. Dundonald, Mrs. A. Mutton's Home	" "	aft. June 3
7. Castleton, Town Hall	" "	aft. " 4
8. Warkworth	" "	aft. " 5
9. Seymour West	" "	aft. " 6
10. Menie	" "	aft. " 7

11. North Monaghan, Hall	East Durham	aft. June 10
12. Fairmount, S.S. Room	" "	eve. " 10
13. Mount Pleasant	" "	aft. " 11
14. Manvers, Orange Hall	" "	aft. " 12
15. Bethany, Town Hall	" "	eve. " 13
16. Millbrook, Town Hall	" "	eve. " 14
17. Baillieboro, Anglican S.S.	" "	aft. " 17
18. Garden Hill, Institute Hall	" "	aft. " 18
19. Elizabethville, Methodist S.S. Room.....	" "	eve. " 18
20. Charlecote, Mrs. W. G. Welch's Home	" "	aft. " 19
21. Cobourg	West Northumberland	aft. " 20
22. Elmview, Private Residence	" "	aft. " 21
23. Fenella, Town Hall	" "	aft. " 24
24. Roseneath, Town Hall	" "	aft. " 25
25. Baltimore	" "	aft. " 26
26. Grafton, Mrs. D. Haig's Home	" "	aft. " 27
27. Wicklow, Mrs. C. E. Robert's Home	" "	aft. " 28

DIVISION 17.—Mrs. M. L. Woelard, 426 Bloor St. W., Toronto.

1. Lorneville, Private Residence.....	West Victoria	aft. May 27
2. Woodville, Town Hall	" "	aft. " 28
3. Linden Valley, Orange Hall	" "	aft. " 29
4. Lindsay, Council Chamber	" "	aft. " 30
5. Oakwood, Private Residence	" "	aft. " 31
6. Manilla, Private Residence	" "	aft. June 3
7. Blackstock, Private Residence	West Durham	aft. " 4
8. Solina, Mrs. Morey's Home	" "	aft. " 5
9. Hampton, Hall	" "	aft. " 6
10. Bowmanville, Mrs. Osborne's Home	" "	aft. " 7
11. Orono, Society Hall	" "	aft. " 10
12. Newtonville, School Room	" "	aft. " 11
13. Reaboro, Mrs. H. Hickson's Home	West Victoria	aft. " 12
14. Omemee, Private Residence	East Victoria	aft. " 13
15. Cameron, Orange Hall	" "	aft. " 14
16. Pleasant Valley	" "	aft. " 17
17. Powle's Corners, Private Residence	" "	aft. " 18
18. Coboconk	" "	aft. " 19
19. Bobcaygeon, M. E. Church	" "	aft. " 20
20. Fenelon Falls, Dickson Hall	" "	aft. " 21
21. Burnt River, Orange Hall	" "	aft. " 24
22. Kinmount	" "	aft. " 25
23. Irondale, School House	Haliburton	aft. " 26
24. Minden, Town Hall	"	aft. " 27
25. Haliburton, Town Hall	"	aft. " 28

DIVISION 18.—Mrs. W. F. Stephen, Huntingdon, Que.

1. Roslin	East Hastings	aft. May 27
2. Phillipston	" "	aft. " 28
3. Bethany, Private Residence	" "	aft. " 29
4. Melrose, Town Hall	" "	aft. " 30
5. Marysville, Mrs. J. McGurn's Home.....	" "	aft. " 31
6. Shannonville	" "	aft. June 3
7. Rednersville, Church	Prince Edward	aft. " 4
8. Mountain View, Methodist Church	" "	aft. " 5
9. Gilbert's Mills, Doxsee's Church	" "	aft. " 6
10. Frankford	West Hastings	aft. " 7
11. Wallbridge	" "	aft. " 11
12. Minto, Club Rooms	North Hastings	aft. " 12
13. Springbrook, Foresters' Hall	" "	aft. " 13
14. Wellman's Corners, Orange Hall	" "	aft. " 14
15. Marmora, Town Hall	" "	aft. " 17
16. Ivanhoe	" "	aft. " 18
17. Madoc, Armouries	" "	aft. " 19
18. Fort Stewart, Council Hall	" "	aft. " 20
19. Bancroft	" "	aft. " 21
20. Maynooth	" "	aft. " 24

21. Clydesdale, School House	North Peterboro	aft. June 25
22. Mount Julian, Mrs. F. Northey's Home ..	"	aft. " 26
23. Norwood, Institute Hall	East Peterboro	aft. " 27
24. Preneveau, Belmont Town Hall	"	aft. " 28

DIVISION 19.—Mrs. G. H. Greer, 870 Wellington St., London.

1. Waupoos, Town Hall	Prince Edward	aft. May 27
2. Milford, Methodist Church	"	aft. " 28
3. Cherry Valley, Mrs. N. Lalmatier's Home..	"	aft. " 29
4. East and West Lake, Disciple Church	"	aft. " 30
5. Wellington	"	aft. " 31
6. Hillier, Town Hall	"	aft. June 3
7. Consecon, Hall	"	aft. " 4
8. Maple Leaf, Lutheran Church	Lennox	eve. " 5
9. Dorland, Mrs. R. Cousins' Home	"	aft. " 6
10. Conway, Methodist Church	"	aft. " 7
11. Stella, Town Hall	Amherst Island	aft. " 10
12. Collins' Bay, Beulah Church	Lennox	aft. " 11
13. Westbrook, Hall	Frontenac	aft. " 12
14. Seeley's Bay, Masonic Hall	South Leeds	aft. " 13
15. Lansdowne, Town Hall	"	aft. " 14
16. Algonquin, Hall	South Grenville	aft. " 17
17. Maynard, Baptist Church	"	aft. " 18
18. Lyn, School Hall	Brockville	aft. " 19
19. Athens, Town Hall	"	aft. " 20
20. Delta, Town Hall	South Leeds	aft. " 21
21. Elgin, Town Hall	"	eve. " 24
22. Newboro, Victoria Hall	"	eve. " 25
23. Westport, Wesley Hall	"	aft. " 26
24. Crosby, Methodist Church Hall	"	eve. " 27
25. Portland	"	aft. " 28

DIVISION 20.—Dr. Mary McKenzie Smith, Gravenhurst.

1. Perth, Library Hall	South Lanark	aft. May 27
2. McDonald's Corners, S.S. Room	"	aft. " 28
3. Elphin, S.S. Room	"	aft. " 29
4. Lavant Station, School House	"	aft. " 30
5. Poland, S.S. Room	"	aft. " 31
6. Watson's Corners, Church	"	aft. June 3
7. Hopetown, Public Hall	North Lanark	eve. " 4
8. Middleville, Hall	"	aft. " 5
9. Lanark, Hall	South Lanark	aft. " 6
10. Drummond Centre, Orange Hall	"	aft. " 7
11. Innisville, Orange Hall	"	aft. " 10
12. Carleton Place, Council Chamber	North Lanark	aft. " 11
13. Almonte, Council Room	"	aft. " 12
14. Clayton, Foresters' Hall	"	aft. " 13
16. Pakenham	"	eve. " 17
17. Pinegrove, School House	South Renfrew	aft. " 18
18. Clay Bank, School House	"	aft. " 19
19. White Lake	"	aft. " 20
20. Burnstown, Temperance Hall	"	aft. " 21
21. Goshen, Hall	"	aft. " 24
22. North Horton, Private Residence	"	aft. " 25
23. South Horton, Private Residence	"	aft. " 26
24. Bonnechere Valley, Private Residence	"	aft. " 27
25. Castleford, Mrs. Johnston's Home	"	aft. " 28
26. Lakeview	North Renfrew	aft. July 2
27. Foresters' Falls	"	aft. " 3
28. Beachburg	"	aft. " 4
29. Locksley	"	aft. " 5

DIVISION 21.—Miss Anna J. Coutts, Thamesville.

1. Cornwall Centre	Stormont	.....aft.	May 27
2. Picnic Grove, Private House	Glengarry	.....aft.	" 28
3. Williamstown, St. Andrew Hall .....	"	.....aft.	" 29
4. Glen Brook, School House .....	"	.....aft.	" 30
5. Martintown, St. Andrew Hall .....	"	.....aft.	" 31
6. Apple Hill, Hall .....	"	.....aft.	June 3
7. Glen Nevis .....	"	.....aft.	" 4
8. Maxville, Institute Hall .....	"	.....aft.	" 5
9. Moose Creek, Mrs. A. A. McLean's Home ..	Stormont	.....aft.	" 6
10. Berwick, Township Hall .....	"	.....aft.	" 7
11. Kars, A.O.U.W. Hall	Carleton	.....aft.	" 10
12. Manotick, Harmony Hall .....	"	.....aft.	" 11
13. Stittsville, Mrs. T. W. Boyes' Home .....	"	.....aft.	" 12
14. Carp .....	"	.....aft.	" 13
15. Antrim, Town Hall .....	"	.....aft.	" 14
16. Galetta, Russell's Hall .....	"	.....aft.	" 17
17. Torbolton .....	"	.....aft.	" 18
18. Dunrobin .....	"	.....aft.	" 19
19. Easton's Corners	N. Leeds & Grenville	.....aft.	" 20
20. Merrickville, Miskelly's Hall .....	"	.....aft.	" 21
21. Burritt's Rapids .....	"	.....aft.	" 24
22. Kemptville .....	"	.....aft.	" 25
23. Oxford Mills .....	"	.....aft.	" 26
24. Bishop's Mills .....	"	.....aft.	" 27
25. Zealand, Methodist Church	C. Frontenac	.....aft.	" 28
26. Mountain Grove	Frontenac	.....aft.	July 2
27. Godfrey, Presbyterian Church	C. Frontenac	.....eve.	" 3

DIVISION 22.—Miss E. Hopkins, R.M.D. No. 1, Lindsay.

1. Gravenhurst, Town Hall	South Muskoka	.....aft.	May 29
2. Bracebridge, Town Hall .....	"	.....aft.	" 30
3. Macaulay South, Mrs. Barron's Home .....	"	.....aft.	" 31
4. Altona, Mrs. M. Harris' Home	North Ontario	.....aft.	June 3
5. Sunderland, Town Hall .....	"	.....aft.	" 4
6. Gamebridge, S.O.S. Hall .....	"	.....aft.	" 5
7. Sandford, I.O.O.F. Hall .....	"	.....aft.	" 6
8. Ufford, School House	Centre Muskoka	.....aft.	" 7
9. Raymond, Miss A. Hamilton's Home .....	"	.....aft.	" 10
10. Port Sydney, Lake View House .....	"	.....aft.	" 11
11. Allansville, Union Hall .....	"	.....aft.	" 12
12. Silverdale, W.I. Hall	North Muskoka	.....aft.	" 13
13. Aspdin, Mrs. J. Willoughby's Home .....	"	.....aft.	" 14
14. Ashworth, Town Hall .....	"	.....aft.	" 15
15. Ravenscliffe .....	"	.....aft.	" 18
16. North Huntsville .....	"	.....aft.	" 19
17. Brunel, No. 5 School .....	"	.....aft.	" 20
18. The Locks, Church .....	"	.....aft.	" 21
19. Dorset, Presbyterian Church .....	"	.....aft.	" 24
20. Birkendale, Mrs. G. G. Robson's Home .....	"	.....aft.	" 25
21. Baysville, Town Hall	South Muskoka	.....aft.	" 26
22. Bala, Town Hall .....	"	.....eve.	" 27
23. Burk's Falls	South Parry Sound	.....aft.	" 28
24. Doe Lake .....	"	.....aft.	" 29
25. Magnetawan .....	"	.....aft.	July 2
26. Dunchurch .....	"	.....aft.	" 3
27. Sundridge .....	"	.....aft.	" 5
28. South River .....	"	.....aft.	" 6
29. Mecunoma .....	"	.....aft.	" 8

DIVISION 23.

NOTE.—The name of the Lecturer, and dates for meetings, will be announced later.

1. North Cobalt	Temiskaming	.....
2. New Liskeard .....	"	.....
3. Rockley .....	"	.....

4. Hillview	Temiskaming
5. Chester's Corners	"
6. Hanbury	"
7. Milberta	"
8. Uno Park	"
9. Thornloe	"
10. Whitewood Grove	"
11. Earlton	"
12. Elk Lake	"
13. Sunnyside	"
14. Heaslip	"
15. Englehart	"
16. Marter	"
17. Charlton	"
18. Swastika	"
19. Matheson	"
20. Homer Siding	"
21. Monteith	"
22. Porquis Junction	"
23. Cochrane	"
24. Hearst	"
25. Kapuskasing	"

DIVISION 24.—Miss B. Gilholm, Bright.

1. Trout Creek	North Parry Sound	June 3
2. Golden Valley	" " "	" 5
3. Loring	" " "	" 6
4. Arnstein	" " "	" 7
5. Restoule	" " "	" 8
6. Hotham	" " "	" 10
7. Powassan	" " "	" 11
8. West Korah	Centre Algoma	" 13
9. Goulais Bay	" "	" 14
10. Tarentorus	" "	" 15
11. Base Line	" "	" 17
12. South Prince	" "	" 18
13. East Korah	" "	" 19
14. Johnson's School House	East Algoma	" 20
15. Bruce Station	" "	" 21
16. Cloudslee	" "	" 22
17. Iron Bridge	" "	" 24
18. Walford	" "	" 25
19. Lee Valley	West Nipissing	" 26
20. Mattawa	East Nipissing	" 27
21. Eau Claire	" "	" 28
22. Feronia	West Nipissing	" 29
23. Copper Cliff	" "	July 2
24. Orrville	West Parry Sound	" 3
25. Carling	" " "	" 4

DIVISION 25.—Mrs. B. O. Allen, 419 S. Archibald St., Fort William.

1. Little Current	East Manitoulin	May 28
2. Sheguindah	" "	" 29
3. Bass Creek	" "	" 30
4. Green Bay	" "	" 31
5. Tehkummah	" "	June 1
6. South Baymouth	" "	" 3
7. Silver Bay (Big Lake)	" "	" 4
8. Rockville	" "	" 5
9. Mindemoya	" "	" 6
10. Carnarvon	" "	" 7
11. Grimesthorpe	West Manitoulin	" 8
12. Billings	" "	" 10
13. Kagawong	" "	" 11
14. Ice Lake, No. 2 School House	" "	" 12
15. Barrie Island	" "	" 13

16. Gordon, No. 4 School House	West Manitoulin	June 14
17. Poplar	" "	" 15
18. Elizabeth Bay	" "	" 17
19. Silver Water	" "	" 18
20. Carterton	St. Joseph's Island	" 20
21. Kentvale	" " "	" 21
22. Richard's Landing	" " "	" 22
23. A Line	" " "	" 24
24. Plummer	N. Shore Algoma	" 26
25. Desbarats	" "	" 27
26. McLennan	" "	" 28
27. Gordon Lake	" "	" 29
28. Echo Bay	" "	July 2
29. Sylvan Valley	" "	" 3

DIVISION 26.—Mrs. H. W. Price, 474 Palmerston Ave., Toronto.

*1. Dorion	Thunder Bay	June 10
2. Port Arthur	" "	" 11
3. Fort William	" "	" 12
4. McIntyre School	" "	" 13
5. South Neebing	" "	" 14
6. Slate River	" "	" 15
7. Carter's School House	" "	" 17
8. Murillo	" "	" 18
9. Conmee	" "	" 19
10. O'Connor	" "	" 20
11. Hymers	" "	" 21
12. South Gillies	" "	" 22
13. Dryden	Kenora	" 24
14. Oxdrift	"	" 25
15. Minnitaki	"	" 26
16. Kenora	"	" 27

DIVISION 27.

Speaker to be Announced Later.

1. Sleeman	Rainy River	June 10
2. Pinewood	" "	" 11
3. Stratton	" "	" 12
4. Shenston	" "	" 13
5. Barwick	" "	" 14
6. Emo	" "	" 15
7. Matherford	" "	" 17
8. Kingsford East	" "	" 18
9. Barnhart	" "	" 19
10. Big Fork	" "	" 20
11. Devlin	" "	" 21
12. La Vallee	" "	" 22
13. Burriss	" "	" 24
14. Crozier	" "	" 25
15. McIrvine	" "	" 26

LIST OF LECTURERS AND SUBJECTS

ALLEN, MRS. B. O., 419 S. Archibald St., Fort William.—Mrs. Allen has proved a most capable and valuable Institute officer in the Fort William district. Her thorough knowledge of conditions in Northern Ontario and her impressive way of imparting practical information will make her services particularly valuable to Institutes in that section of the Province.

Subjects:—

- "Development of Community Life."
- "Canadian Women in War Time."
- "Health and Welfare of the Child."
- "Home Making," including Home Nursing.
- "Our Rural Schools."

BACKUS, DR. ANNIE, Aylmer.—Dr. Backus is a physician with a live practice, and her discussions of health problems will be found of eminent value. She has taken a keen interest in Institute work in her own district, is a forceful speaker, and her wide knowledge of affairs makes her lectures of a character to be remembered.

Subjects:—

- "The Conservation of Health in the Rural Districts."
- "Consumption and Its Prevention."
- "Health and How to Procure It."
- "The Medical Inspection of Public Schools."
- "The Physical Development of the Child."
- "Education and What It Means."
- "The Importance and Meaning of Woman's Work."
- "War and Its Relation to Women."

BOLTON, MRS. M., Wiarton.—Mrs. Bolton is an ex-school teacher who has wide experience in the work of women's organizations and in child-welfare work. As an Institute officer and leader in rural community work she has been most successful, and her thorough, careful handling of the subjects announced will be found both helpful and instructive.

Subjects:—

- "The Call to the Women of To-day."
- "Lessons From the War."
- "War-time Economy and Production."
- "How Can We Best Serve?"
- "Child Welfare."
- "The Moral Influences and Uplift of Our Young People."
- "How the School and Home May Help Each Other."
- "Conservation of Health."

BRETHOUR, MRS. J. E., Burford.—Mrs. Brethour has been a leader in Institute work in Brant County for a number of years, with the additional experience of representing the Department as a lecturer in other sections of the Province. She has a thorough understanding of rural conditions, and her addresses are animated, interesting, and instructive, and are especially helpful to those who are responsible as officers of the Institutes.

Subjects:—

- "Simple Entertaining in the Country."
- "Is a Woman's Time Worth Anything?"
- "The Evolution of the Country Woman."
- "Country Life as I have Found It."
- "Duties and Privileges of Institute Officers."
- "Living up to Our Motto."
- "War Time Activities for Women."

BROWN, DR. CAROLINE, 601 Ossington Ave., Toronto.—Dr. Brown has taught in both rural and city schools, and is now a practising physician and is chairman of the Property Committee of the Toronto Board of Education. She has served as House Surgeon in the Watertown City Hospital, New York, and in the Rotunda Hospital, Dublin, she made a special study of the care of the infant, maternity cases and diseases of women. Recently she has been granted an honorary life membership in the St. John's Ambulance Association in recognition of services as a lecturer. Dr. Brown is particularly interested in school problems and has had experience in medical school inspection work.

Subjects:—

- "Home Nursing."
- "First Aid—St. John's Ambulance."
- "Home and School Clubs."
- "Rural Education—Inter-relation of the Home and School."
- "Medical Inspection of Schools."
- "Character Building."
- "How to Keep Well."
- "The Need of the Hour."

CAMPBELL, MISS SUSIE, 112 Oakwood Ave., Toronto.—Miss Campbell was one of the first Institute workers, and her untiring efforts and practical ideas have won friends for her all over the Province. As District Secretary for Peel County, Miss Campbell has kept in close touch with Patriotic, Red Cross and Community work, and can give most helpful suggestions along these lines.

Subjects:—

- "Individual Life of a Young Woman."
- "Influence of Women and Men."
- "The Judicious Housekeeper and Homemaker."
- "Home and School: The Ideal Country School."
- "How Women Can Aid Agriculture."
- "The Power Our Institutes Should Wield in Adjustment After the War."
- "The Broader Outlook of Women."
- "The Vegetable Garden."
- "Rural Social Life."

CHAPMAN, MISS ETHEL M., 22 Radford Ave., Toronto.—Miss Chapman is a clear, forceful, entertaining speaker with up-to-date information regarding the work of the Institutes, and progressive ideas as to their possibilities, especially in so far as the girls of the Institute are concerned. As a rural public school teacher, Domestic Science graduate, Institute worker, and journalist, Miss Chapman has had experience and gathered information of great value to the Institutes.

Subjects:—

- "The Institute's Opportunities This Year."
- "Things Girls Can Do—At Home, in the Community, in Business or Professional Work."
- "Helping the Twig to Grow Straight—What Medical Inspection and School Clinics Can Do."
- "Such Stuff as Homes are Made of—and Communities."
- "Conveniences and Labor-Savers in the Farm Home."
- "Literature of To-day, and Books for a Home Library."
- "Outside Problems that Concern the Homemaker."

COLLINS, MISS E. M. Ancaster.—Miss Collins has had several years' experience as a Demonstration-Lecturer in Sewing and as a Lecturer to Women's Institutes. Her success as a demonstrator and teacher, together with the ability to instruct in a pleasing, forceful manner, will insure valuable service to the Institutes.

Subjects:—

- "The Principles of Dress."
- "A Girl's Preparation for Life."
- "Homemaking Ideals."
- "Institutes—Their Aims and Achievements."
- "Women's Place in the Ranks."

COUTTS, MISS ANNA J., Thamesville.—Miss Coutts is a graduate in philosophy of Toronto University, and has had several years' experience in a law office. She is active in Institute work in her own county—East Kent—and has an intimate knowledge of the needs and possibilities of Institutes.

Subjects:—

- "The War in Relation to Your Community."
- "War Poetry."
- "The Women's Institutes and the School."
- "Business Law."
- "Community Work."
- "Public Questions of the Day."
- "Books."

COUTTS, MRS. K. B., Thamesville.—Mrs. Coutts has taken an active interest in Institute work, not only in her local branch, of which she has been an officer for several years, but also throughout the surrounding district. Her experience as a public school teacher in town, city and country, and in connection with the work of Historical Societies, Study Clubs, etc., will enable her to present most valuable information and suggestions to the Institutes.

Subjects:—

- "The Story of the Needle."
- "The Power of Words."
- "Social Life and Education in Rural Districts."
- "Legal Status of Women in Ontario."
- "The Child—How to Make the Most of Him."
- "Women's Institutes and Civic Life."
- "Pioneer Days in Ontario."
- "The Essential Work of Women During War and after War."
- "Clothes and the Girl."
- "Canadian Poets."

DUNCAN, MISS B., 5 Ridout St., Toronto.—Miss Duncan is a Domestic Science graduate with practical experience in both a farm and a city home. As a college teacher and Demonstration-Lecturer she has been most successful and the Institutes will find her addresses of interest and value to the girls as well as to the experienced women.

Subjects:—

- "Waste—Necessary and Unnecessary."
- "The 3 R's—Recreation, Rest and Right Living."
- "Conditions as we Find Them and What to do to Improve Them."
- "The Girls of To-day and To-morrow."
- "Woman's Responsibilities."
- "Conservation—It's Possibilities and Our Share of Duty."

GILHOLM, MISS B., Bright.—Miss Gilholm has had a thorough training, with considerable practical experience in Dairy lines. Miss Gilholm's keen interest in country life and social service, together with her experience as an Institute officer, make her addresses of most practical value.

Subjects:—

- "Soft and Fancy Cheesemaking (demonstrated)."
- "First Aid, Emergencies, Home Nursing."
- "The Stranger Within Our Gates."
- "Our Privileges and Responsibilities as Canadian Women."
- "Our Opportunity."
- "A Square Deal for 'The Other Child.' "

GRAY, MISS GERTRUDE, 650 Bathurst St., Toronto.—Miss Gray is a graduate in Domestic Science with a wide experience in Institute work. She is a most skilful Demonstration-Lecturer, and her talk on foods and food values are practical, interesting and easily understood by those who have not given such matters any special study.

Subjects:—

- "Home Defence."
- "What Women are Doing."
- "Some Canadian War Problems."
- "The Individual and the Community."
- "Are We Giving Ourselves a Square Deal?"

GRAY, MISS PEARL M., 253 Talbot St., St. Thomas.—Miss Gray is a graduate in Domestic Science of McDonald Institute, Guelph, with practical experience in country and city life. As housekeeper and dietitian in institutions she has gained information useful to Institute members.

Subjects:—

- "Something About France and Belgium."
- "Social Life in the Community."
- "Women's Opportunities in War Time."
- "Bandaging and First Aid."
- "Daily Home Care of Patient and Sick Room."
- "The Meaning of Food Conservation."
- "How to conserve Time and Energy."

GRAYDON, MISS HARRIETT E., Streetsville.—Miss Graydon is a graduate nurse with considerable experience in hospital management, specializing in nervous diseases. She is keenly interested in the work of the Women's Institutes, having been active in making the Institute at Streetsville a success. She is much interested in girl's work in connection with the Institutes.

Subjects:—

- "Typhoid Fever, Care and Personal Care."
- "Contagious Diseases."
- "Health Hints."
- "Emergencies and Observation of Symptoms."
- "Sick Room and Care of Invalids."
- "Economical Living."

GREER, MRS. G. H., 870 Wellington St., London.—Mrs. Greer's several years of Institute work have proved her to be a most acceptable delegate. Her experience in practical housekeeping and office work and her close study of economic and social conditions enable her to handle most capably the subjects announced.

Subjects:—

- "Housekeeping and Health."
- "Our Obligation to Work—Now and After the War."
- "Thrift in War Time." "Food Problems."
- "Vegetables and Fruits—Their Use and Preparations."
- "Salads and Soups—Why we should Use More."
- "Preparedness."
- "Thoughts by the Way."

HOPKINS, MISS EDITH, R. M. D. 1, Lindsay.—Miss Hopkins is a Domestic Science graduate of Macdonald Institute, Guelph, who has spent two years in hospital dietitian work, and having lived on a farm, knows farm conditions and needs from practical experience, and will be prepared to give information on food values and problems relating to Agricultural Ontario.

Subjects:—

- "Homely Wrinkles to Save the Busy Housewife."
- "Child Study."
- "Desserts and Salads for Summer Days"—demonstrated if necessary equipment is provided.
- "Diet in Relation to Health and War Times."
- "Laundry Work."

HUNTER, MRS. W. J., R.R. 2, Brampton.—Mrs. Hunter has been identified with the Institute work since its inception. She is the mother of a large family and lives on a farm, and gives advice and information of a most practical and valuable nature. Mrs. Hunter has for some months been convener of a large Patriotic League and is in a position to give valuable advice and assistance along Red Cross and other patriotic lines.

Subjects:—

- "Production and Conservation of Food."
- "Our Greatest Asset—The Children."
- "Our Country's Call."
- "Women of Canada—Carry On."
- "Red Cross and Other Patriotic Work."

LOWE, MRS. J. J., Hespeler.—Mrs. Lowe is an enthusiast in Women's Institute work and was active for a number of years in the Waterloo County Institutes. In addition she has addressed meetings in many other sections of the Province as a Departmental Representative. Her practical experience, wide reading and tact insures addresses and advice of much value.

Subjects:—

- "Where are We?"
- "Carry On!"
- "Back Line Trench."
- "What is Worth While."

PARSONS, MRS. H. W., Grimsby Beach.—Mrs. Parsons is a worker of experience in the Women's Institutes, and has been identified with some of the other leading women's organizations of Canada. During the past two years her services have been much in demand by patriotic organizations. She is a fluent, forceful speaker with a wide knowledge of subjects of interest to both the women and girls of the Institutes. School Boards should arrange to have Mrs. Parsons address the children in the schools during the forenoon.

Subjects:—

- "For God and the King."
- "Food Facts."
- "Reforms that Need Our Aid."
- "The Silent Watch."
- "How We Are Governed."
- "New Responsibilities."
- "The Child."
- "The Girl."
- "The Woman."
- "From the Seat of War."
- "The Institute as a National Force."

PATTERSON, DR. MARGARET, 97 Walmer Rd., Toronto.—Dr. Patterson's childhood home was on an Ontario farm. After graduating in Medicine, and after a year's post-graduate work, she was engaged in medical work in India for several years. In recognition of the public services which Dr. Patterson rendered to India, she was awarded the "Kaisir-i-Hind" medal at the coronation of King Edward. Since her return to Canada she has devoted much time to Social Service work. Dr. Patterson is a member of the Executive Committee of the Toronto Red Cross, and of the National Council of Women. She is in a position to give authentic information regarding the work of these organizations.

Subjects:—

Afternoon:

- "Common Diseases, Prevention and Cure."
- "The History and Work of the St. John Ambulance Association."
- "The Conservation of the Children."
- "Individual Responsibility in Public Health."
- "Women's Part in Social Service."

Afternoon or Evening:

- "Medical Inspection in Schools."
- "India's Place in the British Empire."
- "Life in the Orient."
- "The Privilege and Responsibility of Citizenship."
- "The Red Cross in War and Its Present Needs."
- "How to Become Efficient."
- "Some Canadian Problems."

POWELL, MISS M. V., Box 453, Whitby.—Miss Powell is not only a well known speaker in Ontario, but also in New Brunswick. Her pleasing manner secures for her an attentive audience, her thorough knowledge of her subjects gives additional power to her work, her study of educational needs of the children has made her a valuable member of the Board of Education in her home town, her views of the problems of the day are broad and practical, enabling her to be of real value and assistance to her audience. Miss Powell is also actively interested in School and Fall Fairs.

Subjects:—

- "The New Citizen."
- "Women as Empire Builders."
- "Our Greatest Asset."
- "War Time Thrift."
- "National Needs."
- "Our Work and Why."

PRESTON, MISS JANET M., Napanee.—Miss Preston is a Domestic Science graduate, who has had wide experience in teaching and public speaking. She has attended Women's Institute meetings for several seasons and has given most acceptable service.

Subjects:—

- "What Women Can Do to Save the Situation."
- "What We All Ought to Know of Ourselves."
- "We Women and Girls."
- "An Ounce of Prevention."
- "Treatment at Home of Common Diseases."

PRICE, MRS. H. W., 474 Palmerston Blvd., Toronto.—Mrs. Price's training in Domestic Science and her successful experience as an Institute worker, followed by practical experience in the home, places her in a position to give instruction and advice of special value to the mother. Mrs. Price will be prepared to give demonstrations in Home Nursing and First Aid.

Subjects:—

- "Home Nursing and First Aid."
- "Canada's Daughters of Defence."
- "Mothercraft."
- "The Needs of the Hour."
- "Foods, Fads and Thrift."

SIRRS, DR. L. K., R.R. 1, Campbellville.—After spending some time in teaching school, Dr. Sirrs took a course in Medicine, graduating with honors. She has had a wide experience in general practice, is much interested in child welfare and moral and social problems, and has conducted most successfully several series of Demonstration-Lectures in First Aid and Home Nursing. Her work with girls' clubs in her home community insures her having something of value for the girls as well as the women in the Institute.

Subjects:—

- "Medical Inspection of Schools."
- "First Seven Years of a Child's Life."
- "Disinfectants."
- "Home Nursing."
- "Reconstruction After the War."
- "Wild Bird Guests and How to Entertain Them."
- "How to Keep Our Boys and Girls on the Farm."
- "Habits and What They Lead to."

SMITH, DR. MARY MCKENZIE, Gravenhurst.—Dr. Smith was born in Nova Scotia and after graduating in Medicine was engaged in medical work in India for several years, later taking post graduate work in London, England. She has had considerable experience in Institute work, particularly along the lines of Medical Inspection of Schools, and Demonstration-Lecture work in Home Nursing. She is deeply interested in all lines of social service work and her addresses will be found most practical and full of information.

Subjects:—

- "Red Cross Work."
- "The Home Care of the Sick."—Demonstrated.
- "Tuberculosis—Prevention, Care and Cure."
- "The Proper Diet and Care of Children."
- "Crossing the Bridges with our Children."
- "What Every Woman Ought to Know."
- "Woman and Her Present Responsibility."

STEPHEN, MRS. LAURA ROSE, Huntingdon, Que.—Mrs. Stephen was the first lady Institute speaker in the Dominion of Canada, and has travelled from the Atlantic to the Pacific in connection with Institute and other educative work along home-making and dairy lines. Her pleasing addresses, her wide knowledge of affairs and her thorough understanding of conditions in both farming and town communities place her in the front rank of Institute workers. Mrs. Stephen is well known as a writer on dairy topics and has published a book on "Farm Dairying."

Subjects:—

- "Kitchen Ways and Wrinkles."—Illustrated.
- "Economy in the Kitchen."
- "The Part the Dairy Farmer's Wife Should Take in Her Husband's Business."
- "The Making of Farm Butter and Soft Cheeses."
- "What Milk Is—Its Food Value; Its Care."
- "Frozen Desserts and Salads."
- "Making the Home a Better Place in Which to Live."
- "The Influence of Environment."
- "Patriotism and Home Production."
- "Living a Life is More Than Making a Living."

SUTHERLAND, MISS D. M., Dept. Agriculture, Toronto.—Miss Sutherland is another ex-teacher who was attracted to Macdonald Institute, Guelph, from which institution she was graduated in Domestic Science. She was instructor in Dietetics in Johns Hopkins Hospital, Baltimore, Maryland, for two years, returning to her native Province to take up work in connection with the Women's Institutes. Miss Sutherland has proven herself an efficient, popular and sympathetic worker, and is thoroughly conversant with domestic problems relating to the people of agricultural Ontario. She is now giving her whole time to Institute work, and will be available for occasional meetings only.

Subjects:—

- "Economy in the Home."
- "The Food Problem—Its Relation to Health."
- "The Boys and Girls of To-day."
- "Country Life—Its Advantages and Possibilities."
- "Women in War Time."
- "Education by Reading."
- "Our Influence and Making the Most of Our Opportunities."

TOMLINSON, MRS. M. A., Simcoe.—Mrs. Tomlinson has had considerable practical experience in poultry-raising, and in the management of a small farm given to fruit, poultry and bee-keeping, and will be prepared to give thorough advice on poultry raising and the home vegetable garden. She is experienced as an officer of women's organizations, and is, we feel, most capable of rendering valuable service to the Women's Institutes.

Subjects:—

- "Women's Responsibilities in War Time."
- "The Possibilities for Women in Agriculture."
- "Your Library."
- "Food Conservation."
- "Hatching and Rearing Chickens."
- "All the Year Round Egg Production."
- "The Vegetable Garden."

WATTS, MRS. F. W., 51 Chicora Ave., Toronto.—Mrs. Watts has had marked success both as an Institute officer and lecturer. She needs no introduction to the members of Women's Institutes, having covered the greater part of Ontario addressing meetings. Mrs. Watts has for several years judged Ladies' Work, Fine Arts, Dairy Products, etc., at the Fall Fairs in a manner entirely satisfactory.

Subjects:—

Afternoon—

- "Beauty—What Does It Mean?"
- "Health Hints."
- "Helps for Mothers and Daughters."
- "Canning Fruits and Vegetables."
- "Women's Work in War Time."
- "How Shall I Tell My Child?"

Evening—

- "Gardening for Health and Profit."
- "Home Environment."
- "Present Day Needs."

WOELARD, MRS. M. L., 426 Bloor St. W., Toronto.—Mrs. Woelard is thoroughly practical in her methods and has the faculty of imparting information in a clear and forceful manner. She is looked upon as one of our most capable and efficient instructors in the preservation of fruits and vegetables, and will be prepared to give full particulars as to our Demonstration-Lecture Courses.

Subjects:—

- "Canning and Drying Vegetables and Fruits," demonstrated.
- "The Backyard or Vacant Lot Vegetable Garden in War Time."
- "Canning Centres—Using the Surplus Vegetables and Fruits."
- "Chickens and Rabbits as Meat Savers."
- "Health and How to Conserve It."
- "Why I Make My Own Clothes and How to Make Them"—War Time Sewing.
- "The Thrifty Housekeeper."
- "A Tribute to Mothers."

YATES, MISS MARY, Port Credit.—Miss Yates is one of the recognized poultry authorities of the Province, having been employed to a considerable extent during the past several years in addressing special poultry meetings. In addition to this, Miss Yates has had wide experience and training along horticultural lines. She is a most capable platform woman and the Institutes may expect up-to-date information presented in an attractive, impressive manner. Miss Yates won the Institute Gold Medal at Port Credit for hardy herbaceous perennials, and will be prepared to give information upon the management of small flower shows and vegetable competitions which have been a feature of the work in the Institute with which she has been identified.

Subjects:—

Poultry:

- "Modern Methods of Hatching and Rearing Chickens."
- "Eggs All the Year Round."
- "Dressed Poultry—Preparation for Market."
- "Poultry on the Bill of Fare."

Horticultural:

- "The Small Vegetable Garden."
- "Annual Flowers."
- "Informal Planting of Home Grounds."
- "A Chat About Roses."
- "Meatless Days."

General:

- "Community Life."
- "The Duty of Women in War Time."
- "Home Culture."
- "The Family Budget."

Demonstrations:

Miss Yates will be prepared to give demonstrations in killing, trussing for roasting, boning a fowl, carving, the market egg and its variations, candling eggs. Information regarding requirements for these demonstrations may be secured by writing the Institutes Branch.

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